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The Rontgen Oration.[1]

PRACTICE AND PERSONALITIES AT HOBART TOWN, 1828-1832, AS INDICATED BY THE DAY BOOK OF JAMES SCOTT, M.D., R.N., SENIOR COLONIAL SURGEON.

By W. E. L. H. CROWTHER, D.S.O., F.R.A.C.P.,
Hobart.

THE College of Radiologists of Australasia, young in years, has already established the custom of an oration, to be delivered at its annual meeting, as a reminder of its indebtedness to Wilhelm Conrad Röntgen, the discoverer of X rays.

The acceptance of the honour of an invitation to assume such responsibility offers, as well, this opportunity to express, on behalf of our profession, its homage and gratitude for the life work of so great a man.

The matter and form of this oration, Mr. President, have evolved from a short paper read before The Royal Australasian College of Physicians earlier in this year. It will be found, however, that it describes medical men and others whom either college may well find of interest, and the work of the former in a community whose descendants are in the Town Hall tonight at the invitation of yourself and your Council.

Towards the end of 1952 Mr. W. Dennistoun Scott, of London, offered the trustees of the Tasmanian Museum a number of articles relating to his grandfather Colonel Thomas Davey, R.M., the second lieutenant-governor of Van Diemen's Land, and his grandfather James Scott, M.D., R.N., senior colonial surgeon to its medical establishment.

Colonel Davey is represented by a pair of heavy silver shoe buckles and a reproduction in colours of the famous proclamation to the aborigines of Van Diemen's Land. None of his personal papers and correspondence, including any sent to his patron the Earl of Harrowby, appear to have been preserved (W. D. Scott, personal communication)—a sad loss, but not comparable with the destruction of those of his predecessor, Lieutenant-Colonel David Collins, R.M., at Hobart Town in 1809. His were burned at the tiny cottage that housed the lieutenant-governor, in the short interval between his death and burial. Only those who are familiar with Collins's "Account of the English Colony in New South Wales" can realize the effects of this outrage, by which Tasmania was deprived of the material from which might have been compiled an authoritative description of the settlement at the Derwent and six desperate years of toil and famine that followed.

[1] Delivered at the fourth annual meeting of the College of Radiologists of Australasia, November 19, 1953.

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James Scott has fared better. Here are his ivory-mounted wooden stethoscope and two lancet cases in chased silver for use in vaccination, with a portrait of himself in uniform and others of his sculptured head and shoulders. His documents include a diploma and 24 engraved cards of admission to various courses of lectures, demonstrations and clinical studies at the University of Edinburgh during the years 1807-1808 and 1815-1816. There are also likenesses of Colonel Davey and his daughter Lucy Margaretta, with three very rare lithographs of Hobart Town printed there in 1833, and two journals—the one of his son Arthur Scott while on a voyage to the South Seas on the whaler *Wallaby* in 1841; the other a day book of his own covering parts of the years 1828-1831. It is with this journal that we are concerned tonight. It is in parts difficult to decipher and careless in punctuation, and its entries with two exceptions are brief and irregular. Yet there is so much of interest in relation to the methods of Scott's practice and the personalities of the patients that an attempt to place a selection on record is justified. Before doing so consideration should be given to the character and career of the writer himself.

James Scott, M.D., Assistant Colonial Surgeon, Comes to Van Diemen's Land.

Born in 1790 at Inchdraver, Rothiemay, the eldest son of Thomas Scott, by family tradition a cousin of Sir Walter, young James entered the University of Edinburgh in 1807 as an extramural student. His cards show him as attending lectures and demonstrations in botany, chemistry and pharmacy and courses in *materia medica* and midwifery, with clinical and practical instruction in medicine and surgery. In two years he was granted the diploma of the Royal College of Surgeons of Edinburgh. It is not clear when he joined the Royal Navy or if he saw active service in this phase of the Napoleonic wars. He returned to his university in 1815 and after attending courses in military surgery, midwifery, medicine, surgery, pathology, *materia medica*, pharmacy and dietetics, graduated as M.D. (Edinburgh).

With the coming of peace Scott sought an appointment to the medical establishment of New South Wales and reached Sydney in 1820 as surgeon to a convict transport. At the end of the year he was posted as assistant surgeon at Hobart Town, where he arrived by the ship *Caledonia*. His appointment in the *Hobart Town Gazette* of January 21, 1821, is as in full control of the colonial hospital at the salary of £182 10s. *per annum*, "following the superannuation of Surgeon Luttrell". This appointment was confirmed by Lord Bathurst only on December 4, 1824, when Scott's promotion to be colonial surgeon with control of the medical services of Van Diemen's Land was gazetted. In this capacity he continued to be subordinate to Dr. Bowman, the principal medical officer at Sydney, to whom he was required to submit medical returns, although he observes that "they were never commented on by that officer". The Colonial Government recommended an increase in his salary in 1828, when his naval half-pay ceased, and again in 1835, only to be informed that "the matter was held over temporarily". Scott himself petitioned a year later that the medical personnel at Van Diemen's Land might be granted comparative pay and allowances with those of the parent colony, and he himself be placed on the same scale as its principal medical officer, again without any response from the Home authorities. The Colonial Treasurer would not have been perturbed by Scott's rebuff, as the latter had prospered to an unusual degree since his arrival in the colony. Actually, within six months of his arrival he had been granted 800 acres in the Sorell Creek area, which he called "Scottsdale", and before 1827 a location of the same size, "Rothiemay", at the Clyde River, with an additional 1200 acres elsewhere. The most important factors in his success, associated with his marriage to Miss Lucy Margaretta Davey, came about in this manner. On April 23, 1821, the *Hobart Town Gazette* made an extraordinary announcement that Colonel Lachlan Macquarie, with Mrs. Macquarie and Master Lachlan Macquarie and suite, had arrived at the Derwent and would land that afternoon, when it was expected that the more respectable inhabitants would no doubt be present to welcome them. Their ship, the *Midas*, had been sighted in Storm Bay, from the telegraph at Mount Nelson on the previous Sunday, but the winds having been light and unfavourable, it was not until midday of Tuesday that she came to anchor in Sullivan's Cove. In the early afternoon the vice-regal party landed by government barge, to a salute of nineteen guns from the *Midas*, with an acknowledgement by a similar number from the Mulgrave Battery, all the ships in port manning their yards as the Governor-in-Chief passed them to the shore. Colonel Macquarie tells in his journal how Mrs. Macquarie, after landing "proceeded in the Lt.-Governor's [Colonel Sorell] carriage to the lodgings taken for us at Mr. Birches' in Macquarie Street, where I joined her immediately after the breaking up of the Levee at Government House".

Mr. Birch had come to the colony as surgeon to the whaleship *Dubuc* in 1808. He had not practised his profession seriously, but as shipowner and pastoralist had become a man of wealth and influence. His residence, "Macquarie House", of three stories, with a battlemented parapet, built in the year of Waterloo, is still in use, although unrecognizable with a modern brick façade. Four days later, when on the point of setting out on his tour of the island, Colonel Macquarie had the misfortune to lose his fine horse Ajax, who broke out of his stable and, impaling himself on the handle of a plough, died almost instantly—a sad loss, as he had been a favourite mount for upwards of eleven years. The Governor, in his journal of April 29, 1821, remarks:

> It is particularly provoking to lose so valuable a horse on so foolish a manner and more particularly at the present moment when we are so much in want of horses on the eve of our departure for Port Dalrymple, on which journey poor Ajax would have been so very useful to us.

The Governor's party returned from their tour in time for Scott's marriage to Lucy Margaretta Davey, which took place a month later at old Saint David's Church. The father of the bride, Colonel Davey, former Lieutenant-Governor and now pastoralist at "Carrington" near Richmond, was on a visit to England, and it was the Governor-in-Chief who came to the rescue of Mrs. Davey. No details of this ceremony of such social interest are to be found in the *Gazette*, but the church register shows the marriage to have taken place in the presence of Colonel Macquarie, Mr. James Wyld, Judge Advocate-General of New South Wales, and Ed Abbott, Esq., Deputy Judge Advocate of Van Diemen's Land. Nor was this courtesy all. Macquarie must have had a tenderness for the family of the impulsive and unconventional Thomas Davey, so unpredictable and so difficult as his subordinate at Hobart Town. So we may read in his diary of the date of the wedding (June 25, 1821):

> I attended the marriage of Miss Davey and Dr. Scott this day and gave her a grant of 1000 acres of land for her own exclusive use.

This regal gift is believed to have included that magnificent slope extending from the end of Argyle Street, through New Town, to Saint John's Church and the foothills of Mount Wellington. Here, just below the crest of the hill and overlooking both town and harbour, Scott built his home. This mansion, for it is no less, he named "Boa Vista". It is little changed outwardly after almost a century and a quarter of constant use. After the departure of the Scotts it housed Bishop Nixon, the first occupant of the See, and his family for the short period before he moved to the property he named "Bishopstowe" and which is now "Runnymede". It was also the home of Mrs. Caroline Leakey, who published in 1854 a book of verse, "Lyra Australis", which has, in its introduction, this reference to her residence:

> Boa Vista; or songs of the Balcony (its major content) my kind friends in Tasmania will at once recognize as the selection that I dedicate immediately to them. My readers must know that this chapter is named after a house in which I resided for a short time and on the balcony of which many an hour was soothed with cheerfulness.

It is very probable that during these same hours the invalid planned and shaped her major work, which appeared five years after under her pseudonym "Oline Keese". This novel in two volumes, "The Broad Arrow, being Passages from the History of Maida Gwynham, a Lifer", is second only to "For the Term of His Natural Life", by Marcus Clarke, in power and literary ability. Another occupant, Mr. Travers, built the first Royal Tennis Court of Australia in Davey Street. In the last half-century it has housed three schools, The King's Grammar, Clemes College and now the junior portion of the Friends School.

It was here that Scott in 1829 made his home and where his children were born. In his journal on October

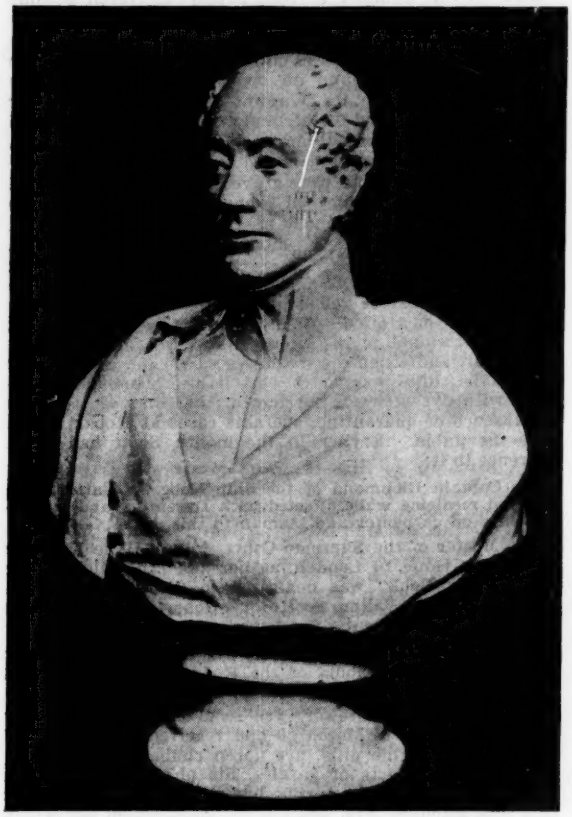

FIGURE I.
James Scott, M.D., R.N., Senior Colonial Surgeon.

23 of the same year he has written: "Mrs. Scott was delivered of a son at 20 minutes to one o'clock, ante meridian, who was named Ernest Ross Lewin. Baptised by the Rev. Mr. Carvosso." A son Walter, born in 1832, qualified in England and returning to Australia practised medicine in Victoria until his death in 1897. Mention must be made of one of his daughters, Mary Bell, who in 1841 married Count Ehrensward, at that time at Hobart Town in command of a French frigate. She set off with him on the return voyage to Europe, but the ship was cast away on the coast of New Zealand, with the loss of many of her possessions, including a number relating to Colonel Davey.

Scott had also a surgery in Liverpool Street, as in addition to his official duties and certain magisterial obligations, he was allowed private practice. This is said to have amounted to £2000 *per annum*—a very large sum for the period. He was enabled to undertake this by the appointment in 1828 of Dr. E. S. P. Bedford as assistant colonial surgeon, with the supervision of the Colonial Hospital and other institutional duties. Bedford, son of the senior chaplain and a young and eager surgeon, gradually assumed the clinical work of the hospital, and by 1837, the year of Scott's death, was doing its major surgery, demonstrating in anatomy and training an occasional medical pupil.

Practice and Personalities at Hobart Town.

The journal or day book measures fourteen by five inches, contains 45 pages of hand-made paper, and is bound in limp blue covers. The memoranda have been written on both sides of the page with a quill pen. Scott commenced well and entered his work fairly regularly from November 1, 1828, to June 3, 1829, but from that date to February, 1831, he made use of only three pages, and these with details of accounts to be rendered. On resuming the journal he wrote, "A new leaf turned over in 1831", and

FIGURE II.
Lieutenant-Governor Thomas Davey, Colonel, Royal Marines.

kept faith with fair regularity until its end on June 16 of the same year. The actual entries are for the most part names and dates of patients seen and visits paid. Occasionally more information is given, and in two instances several pages were required for case histories of unusual interest. Fees paid or to be debited, usually 10s. or 7s. 6d., are at times specified and more rarely the detailed items of long attendances.

The very names of his patients indicate Scott's standing in the community. Witness those of the Masters Arthur, sons of the Lieutenant-Governor (while strangely enough he does not seem to have attended the poor unassuming wife of Colonel Arthur in her long succession of confinements), Joseph Hone, Esquire, and Mr. William Sorell, of the Supreme Court, and a virtual monopoly of the naval and military officers and their families. Others mentioned include Captain James Kelly, explorer, whaler and shipowner, and Captain James Hobbs, also an explorer of the coasts of Bass Strait, who in 1828 acted as pilot to Captain Dumont D'Urville of the *Astrolabe* when that vessel came to the Derwent, and was able to inform him how, as long before as 1811, when chief officer of the *Union of Calcutta*, he had seen wreckage on the coast of New Georgia, Solomon Islands, thought to have been that of the small vessel built at Vanikoro by the castaways of the expedition of La Pérouse. As a result the celebrated French circumnavigator sailed the *Astrolabe* forthwith to that island and was able to confirm Dillon's account of the loss of La Pérouse, his two ships and all the members of his expedition (Dixon, 1925).

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Captain Wilson was also a patient. His vessels were early to the coasts of New Zealand for right whales and trading to the Pacific and the Old World; as Sir James Wilson he was prominent in the political life of this island. The Degraves family, founders in 1824 of the Cascade Brewery, were also patients; several of whom were lost some years later with the *Royal Charter* on the coast of Wales, almost at the end of their long voyage home. Others of equal or greater interest appear, as J. T. Gellibrand, Attorney-General and later founder of Australia Felix, now Victoria, who with his small party disappeared for ever on their passage by foot between what

FIGURE III.
Lucy Margaretta Scott, daughter of Colonel Thomas Davey.

is now Geelong and the infant settlement of Melbourne. Two editors are named: the indomitable Andrew Bent, dispossessed of his *Gazette* and as well beggared and imprisoned, in his struggle for the liberty of the Press, and James Ross, who took the easy way of Arthur's policy while yet essentially able and upright in character. The Mr. Atkinson mentioned in the summer of 1829 may have been the artist, three of whose lithographs, printed at Hobart Town in 1833, were among Scott's papers and are reproduced (Figures IV, V, VI).

Surely James Scott must have occasionally, in the course of his day's work, paused to wonder at such personalities and appreciate their strength of character! In describing the complaints from which these individuals suffered and the treatment adopted, it is proper to use the actual terms employed in the journal. For example, Captain Kelly was seen on November 10 and found to have a condition of cynanche.[1] He was visited once or twice daily until November 13 and received as treatment bloodletting, blister, gargles *et cetera*, for which he was debited the sum of £4 4s. No easy patient, I imagine, so heavily built that, it is told, each leg of his trousers could contain a full-size bag (six bushels) of wheat, and so strong that when the barque *Wallaby* returned to Hobart Town, carrying the body of one of his officers killed a day or two before in an encounter with a whale, Kelly, single-handed, lifted the coffin from the poop and carried it to the shore. There is an early reference to whooping-cough when Scott was called by Mannington, the baker, and he prescribed for his young patient six powders, half an ounce of antimonial wine and an ounce of liniment.

Later in the summer a fresh supply of lymph became available, either from Sydney or from vaccine transferred from person to person throughout the long voyage from England. Kelly's youngest child reacted so well as "to require three visits" and an opportunity was made "to operate for its tongue, its being tongue-tied". A little later Captain Kelly received his account, which read "To medical attendance on Self and Family at various times May 1, 1828, to May, 1829" and amounted to £27 10s. That dysentery and gastro-enteritis were grave disorders at this period is shown by this sad entry on January 31: "Miss Ross, two to four visits daily", January 22, 23, 24, 25, 26, 27, 28 and 30, while affected with dysentery, "of which she died". She was either one of the large family of his friend Dr. Ross, of the *Courier*, or a daughter of Mr. Hugh Ross, the solicitor. It must be remembered that Hobart Town was then the first port of call of ships from India and the East, which after rounding the Leeuwin and crossing the Bight made their landfall off the south-west coast of Van Diemen's Land. The ships' companies were liable to include individuals with dysentery or carriers of that disease; thus, in the absence of quarantine, sporadic cases at Hobart Town were inevitable. Earlier in the month Scott had made reference to it:

> Captain Richmond of the Ship Hebe. To attendence and medicine while affected with Dysentery and attendence on carpenter and seaman to this date. £4.4.0.

The Master of the Supreme Court, Joseph Hone (brother to William Hone, of London, author and bookseller, whose "Every Day Book" was dedicated to Charles Lamb and praised by Sir Walter Scott and Robert Southey), was treated for an accident. Scott made this brief record:

> Visited at half past eleven p.m., reduced fracture of the Tibia and Fibula of the R Leg and remained till 2 a.m. Latimers Lotion and Splints etc.

Mr. Gatehouse, the brewer, was seen once or twice daily from January 10 to March 20 and received in that period three dozen quinine pills, five dozen rhubarb pills and no less than ten quarts of gargles, his physician observing, "the above was given during his sickness". Scott about this time attended Mrs. Adey in her confinement, for which a fee of six guineas was charged. Mrs. Grant was not so fortunate in her delivery, as "in spite of frequent visits" from Scott and a consultation with Dr. Bohun, surgeon to the Sixty-third Regiment, her girl child lived only a few hours. Mrs. Degraves had occasion to send for him in reference to her leg, and made the opportunity to engage him "during labour in the beginning of next month". His services were required, however, only two days later for the birth of a daughter, "which", he stated, "necessitated many visits during the following week". Mr. Bent (there were three of them at Hobart Town in 1831—a bootmaker, a bricklayer and the editor of the *Gazette*) was examined early in February and found to be affected with "nodes on the head and on the upper end of the Right Tibia and an Ulceration of the Palate". His illness dragged on till mid-April, when after a consultation, once more with Dr. Bohun, the treatment was changed. Three days later Scott was informed by Mrs. Bent (surely the sorely tried wife of the unfortunate editor!) "that she was not satisfied with my treatment which induced me to leave him and recommend him to call in another attendant". Each of us must have had such an experience in our practice. How many would have recorded it with such felicity?

[1] A term usually employed for peritonsillar abscess or quinsy. It was derived from two Greek words, κύων (a dog) and ἄγχειν (to strangle), pronounced sin-angke, and used widely as an expression for sore throat.

All these excerpts, impersonal and concerned only with acute illness and ordinary incidents of general practice, reveal the care and unremitting attention he afforded his patients. On May 24, however, Scott found himself faced with a major surgical emergency. His patient, Mrs. Norman, of Macquarie Street, would have been the wife of the Anglican chaplain, and the operation, as was usual, undertaken in her home. It should be remembered that in the thirties of last century there was no anæsthesia or antisepsis, nor in this instance any mention of the presence of female help, although the community did possess one nurse, Mrs. McTavish, the midwife of New Town Road.

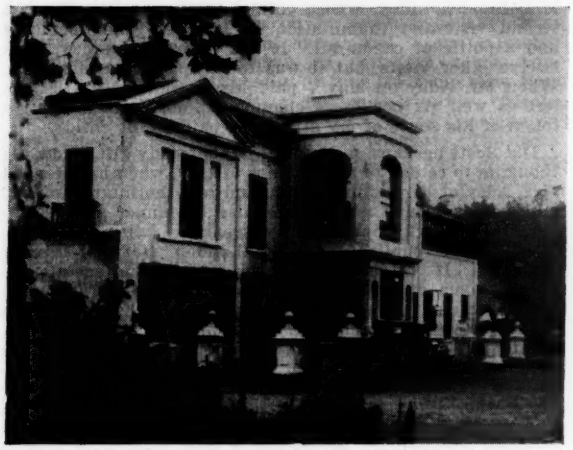

FIGURE IV.
"Boa Vista", Argyle Street, Hobart, as it is today.

Here is Scott's description of the operation and after-treatment in its original form and punctuation:

May 29, 1829. Hora 12 p.m. Mrs. Norman. Have been attending her these last three months with considerably enlarged Schirus Axillary Glands on the right side which has of late pained her greatly extending down the arm the Lymphatics of which are frequently much swollen. Health for these last ten days has been becoming much impaired from the want of sleep occasioned by the pain in the Axilla. Had consented to have the diseased gland removed and in the presence of Drs. Bohun and Russell of the 63rd, Dr. Jeanneret and Surgeons Spence, Bryant and Westbrook with the attendance of Mr. Sub. Asst. Surgeon Bedford and Mr. Loane the patient was placed on a table and two semi-lunar incisions made parallel with the most prominent part of the Tumor from the bottom of the Axilla as near as prudence would allow to the Axillary Artery by which we were enabled to take hold of the Tumor and to separate it with the knife and tear with the fingers from its connections which were much greater than was expected extending considerably under the Pectoralis minor towards the Clavicle and backwards under the Latissimus Dorsi almost under the apex of the Scapula—in detaching this extremely enlarged gland several arteries and veins were divided but by pressure by the fingers of either Mr. Russell or myself the hæmorrhage was stopped except in two which required taking up (the Posterior Subscapular and External Mammary). After the Tumor was removed, a pretty much enlarged gland was discovered high up towards the Clavicle under the Pectoralis Major close on the ribs, which required considerable force to tear it from its insertion which together with two others was effected after much difficulty greatly to the satisfaction of all present. Several branches of the Axillary Plexus were divided as well as the Long Cutaneous nerve apparently without giving much increase of pain. The wound was next cleaned freely of the blood and the edges brought in union with adhesive plaster and secured with compress and bandage. She was allowed wine and water during the operation and had an opiate draught when put to bed.

Hora 7 p.m. Is by no means very uneasy but much exhausted by the operation. Is much troubled with flatulency let her have Ginger Beer made with Cream of Tartar, Sugar and Ginger, as much as she pleases, and the Anodyne draught to be repeated at Bed Time.

30. H. 10 a.m. Passed a tolerable night has no pain in the wound but considerable in the arm near the Elbow which she attributes to the way in which it was grasped during the operation. Complains of an intolerable headache skin hot and dry with tongue parched and foul. Pulse about 120. Let the wound and painful part of the arm be kept wet with Vinegar and water. The headache and constitutional condition being attributed to the wine taken during the operation and Anodyne draughts together with the nervous shock which the delicate system would receive by the operation. She was ordered to have the Ginger Beer continued along with some Camphor Julep every three hours.

Hora 7 p.m. Headache and the other symptoms complained of in the morning rather increased. The superficial dressings were removed without any collection of matter having occurred. To continue the cold applications and to have a sufficiency of the Infusum Senna combined with Manna and Ginger to operate freely on the bowels.

June 1. Hora 10 a.m. Was much relieved by the Cathartics used, and all the symptoms much moderated this morning. Pulse 112. Skin rather hot and dry with throat parched tongue foul. To have the Ginger Beer as before with the eighth of a grain of Tartaric Antimony every three hours. Also the continuance of the Camphorated Julep.

June 2. Hora 8 a.m. Passed a better night and feels although very weak much the same. Pain in arm abating. Examined the wound which has nearly healed up. Discharge good. Complains of pain on the apex of the sixth and seventh ribs extending downwards which is somewhat swollen and inflamed. Let the three parts be kept wet with the Saturnine Lotion and to continue the other medicine as before.

Hora 7 p.m. Since she began to take the Tartarized Antimony has had sickness and a little vomiting, which occasioned the omitting of that medicine. Tongue still feels foul and parched. Skin inclined to be moist head much relieved. To have the cathartic medicine repeated at bed time should there be any general restlessness and necessary. The Ginger Beer to be continued without the Antimony.

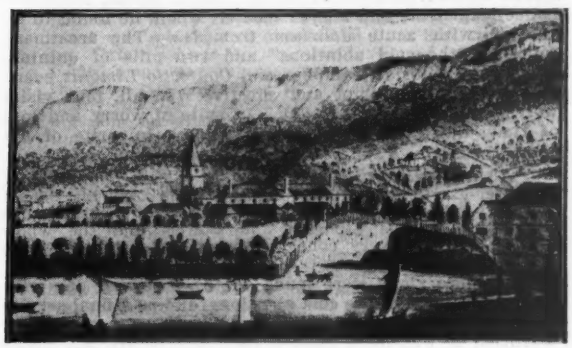

FIGURE V.
Residence of His Excellency Lieutenant-Governor Arthur, 1833.

3 June. H. 10 a.m. Had a better night after the medicine and expresses herself much better. Wound dressed which looks well with a healthy copious discharge. Matter has formed on the apex of the ribs which is easily pressed out at the wound. Both ligatures came away with the dressings. Applied over the dressings a compress and secured all with a bandage. Pulse 100 tongue moist and cleaning no uneasiness in the arm. Continue the Camphor Julep and Ginger Beer.

4th. Had a good night and all symptoms much moderated.

This is the final entry in relation to Mrs. Norman, and indeed her progress should have continued to be satisfactory, with the wound discharging freely and no evidence of local extension or general infection by this, the seventh

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day after operation. Scott would also consider the danger of secondary hæmorrhage to be past with the separation of the ligatures. Here is the last entry recorded, without comment, on March 28, 1831: "Received on account of Mr. Norman £31.11.6 by an acceptance of Mr. Horne."

Some Medical Aspects of Scott's Practice.

In what has been written Scott appears as a competent and courageous surgeon. He seems to have possessed as well the qualities of tact and patience so necessary to a physician. These would certainly have been required during his attendance "on the eldest daughter of Mr.

FIGURE VI.
The Treasury, Hobart Town, 1833.

Evans", the early explorer of New South Wales and latterly Surveyor-General of Van Diemen's Land. An entry of March 28, 1831, "To drawing a Tooth which required several visits before her consent could be obtained to permit its being operated upon, £2.2.0", reveals Miss Evans as rather less tractable than we have been accustomed to picture the young ladies of the regency. Earlier in the month he had been called to Mr. Josiah Spode, Assistant Police Magistrate and Muster Master, whom he found to be affected with acute *delirium tremens*. The treatment "applying the cold ablutions" and two pills of quinine, ammonium chloride, camphor and *Confectio Limonis* every four hours was prompt and effective. In all, four visits were required during the day. In spite of worry and loss of time, Scott was large-minded enough to write of his fellow official:

> This affection appears to have been brought on by over-exertion of mind, and late hours on his official duty, along with taking a great deal of medicine, has debilitated the Stomach and Bowels and the whole system to a very considerable extent. *Vespere*, feels relieved in every respect. £1.10.0.

Four more visits were made on the following day with two applications of the cold ablutions, and as a final service his physician "gave him an Enema". In spite of all this attention it was more than a fortnight before Mr. Spode resumed his duties.

There is a brief entry on March 8 to this effect:

> Called in to consult with Dr. Crowther on the state of Mrs. Deane, 2nd of March, and gave daily visits to the present time.

The lady was the wife of Mr. J. P. Deane, described in the Hobart Town *Almanack* as "Professor of Music and Circulating Library, Elizabeth Street". It is not clear if the attendances were in common or if Scott had taken over her treatment. In any case the mutual antipathy and distrust of the two surgeons was such as to render any real cooperation out of the question.

Late summer and autumn were, in the Hobart of my boyhood, the seasons when typhoid fever was rife, and it was probably the same in the period under consideration. So we find Scott during April attending Julia, the daughter of William Sorell, as well as making a series of visits to Master Charles Arthur, son of the Lieutenant-Governor. While he does not mention their affections, both were probably suffering from what was then known as low or colonial fever and now believed to have been one of the typhoid group. Julia recovered in due course and on a summer's day of 1850 married Mr. Thomas Arnold, Inspector of Schools for Van Diemen's Land, and a son of Dr. Arnold, of Rugby. The union is of unusual interest, as their daughter Mary is better remembered as Mrs. Humphrey Ward, whose novel "Robert Elsmere" and translation of Amiel's "Journal" placed her among the outstanding authors of her day. Her grandson Dr. Leonard Huxley, the eminent scientist, recently visited Tasmania.

Later in the same month Scott attended at the home of Mrs. Stephen Adey, whose child Louisa was ill. After a second visit and examination he left her some medicine and a bottle of castor oil. It had been a busy day, with twelve other visits, but it was to have its compensations. When Mr. Adey on May 7 paid his account of £2 10s., he left as well six bottles of champagne, as, Scott writes, "a token of his sense of my attentions paid to his child".

Did Scott perhaps, mellowed by this timely gift, allow his thoughts to return to the summer of 1829, when he attended Mrs. Adey at her confinement? And was the infant Louisa? He may well have remembered also the anger and resentment at Hobart Town two years earlier, when the sensational letter published in the London *Morning Herald* arrived. It contained descriptions of the social life and customs of Van Diemen's Land, which were treated with contempt and derision, as "notwithstanding its natural advantages and commercial promise . . . it [Hobart Town] was a town without a Library and where the common spirit of detraction was exasperated by competition for those favors the Governor could refuse or transfer [and where] the presence of power was everywhere felt, and dreaded where it could not be defied". This long and detailed commentary of an angry and frustrated woman was at the time attributed to Mrs. Adey. It is now known to have been the work of her sister, Mrs. Mary Leman Grimston, author of a novel, "Woman's Love", in three volumes, written whilst staying with Mrs. Adey and published in 1831 after her return to England.

On May 1, Mr. Boyd, chief clerk to the police office, perhaps emulating his superior, Mr. Spode, in the matter

FIGURE VII.
The Barracks, Hobart Town, 1833.

of "late hours on his official duties and over-exertion of mind", developed the same symptoms and had recourse to Dr. Scott, who comments, "gave him on account of his labouring under Delerium Tremens Ol Ricin two ounces", debited the fee of £1 10s. and made no further calls.

By leaving his home, "Boa Vista", and taking the road to the May Pole Inn and thence towards Risdon Ferry, Scott would pass a number of early colonial homesteads, nearly all of which are still occupied and little changed externally. Approaching New Town Bay he would see from the saddle, beyond their hawthorn hedges, "Runnymede" on its knoll and across the way, on rising ground, "New Town Park". Here lived Captain Charles Swanston, and here with the two Gellibrands from nearby "Derwent Park"

and other members of the Port Phillip Syndicate he planned the settlement of that part of Australia Felix now known as Victoria. Passing "Pitt's Farm", on the level ground below Swanston's estate and separated from it by the New Town Creek, Scott would come to his destination, a simple two-storied freestone house, still standing in a Chinaman's garden. It was the home of Captain Anthony Fenn Kemp, late of the 102nd New South Wales (Rum) Corps, more recently landowner at "Mount Vernon" and merchant at Hobart Town. Kemp, who arrived in Van Diemen's Land in 1804 as a member of the expedition to found Port Dalrymple, had in the intervening years become irascible and difficult. He and his family did not enjoy good health and many visits were made by Scott for dental trouble or trivial ailments. Thus in the autumn of 1829 Miss Louisa was ill for several days, and Scott extracted "normal" (that is, deciduous or primary) teeth from Master Esmond and Miss Amy. About the same time Miss Eliza was visited twice in a day, with another visit to Alfred, when five teeth were removed. Miss Georgina on May 5 merely required six cathartic powders. The teeth of the family continued to be troublesome, and two years later, on successive days, Scott was required to scale those of Mrs. Kemp and her son George, whose teeth also required stuffing (that is, filling). Miss Maria had similar attention and a stump extracted, while Miss Eliza received a dressing to her scalded foot. Only the Misses Amelia and Louisa appear to have been in normal health. One may imagine the exasperation of Scott as the children were submitted in succession for his consideration. The entries are often disappointing in their brevity — for example, "Mrs. Sergeant's son. Two visits while in Articulo Mortis with Dr. Westbrook". Was the condition convulsions, acute gastro-enteritis or the final stages of a long illness? There is no answer.

Events in the Montague household, later in the summer, show adults as well as children to have been affected by the outbreak. Captain Montague, soon to be Colonial Secretary to Colonel Arthur and later the bitter enemy of Sir John and Lady Franklin, sent for Scott early in February. Here is the scant record of a long attendance:

> Captain Montague called in to attend his family in February. To youngest child four visits and medicine and to Master John 3rd of March affected with the fever one visit and med[icine].

On the next day the same, with two visits and medicine on March 5 and 6. Thereafter one visit only was paid each day till March 14, when he was required three times for the child, to administer an enema and prescribe Pill Dys [*sic*] for Mrs. Montague. On the following day both parents were affected and Scott noted: "Captain Montague for Diarrhœa ad[vice] and med[icine] Mrs. Montague ad[vice] and medicine." He found it necessary to visit constantly, sometimes twice in the day, until April 8, when, no doubt with much relief, he entered in the journal, "Captain and Mrs. Montague and family convalescent".

On the twenty-fourth day of the preceding month, late in the evening and after a heavy day's work, he received a call to the home of his friend Captain Bell, at New Town. Here is his description of the series of dramatic events encountered and the measures adopted to meet them.

> *March 24, 1831.* At 11 p.m. was requested to go out immediately to New Town where on my arrival I met Captain Bell at the door of his house, who informed me that Mrs. Bell was dead, as also the little girl, the daughter of his manservant Brown. I felt horror struck and followed him into his little parlour, where the body of the little girl lay. I hastily examined it, and finding it cold and life extinct, I rushed upstairs to Mrs. Bell's bedroom and found the body in bed, with the clothes undisturbed and the countenance natural, face cold and the body warm. I immediately began to depress the chest to restore respiration and life, but after some exertion and inflating the lungs it proved of no avail and I then began to deplore and lament over my friend and exerted my ingenuity to ascertain what could have been the cause of such a catastrophy and in broken expressions demanded to know from Captain Bell, who stated that when he returned from town, where he had dined about ½ past seven. Mrs. B. seemed quite well but complained of her situation from the want of servants, and soon after took her candle and went to bed. Her little girl, who slept in the same room alongside of her bed on the floor, came downstairs to Captain Bell and said her mistress had sent her down to know whether he wanted the key of the sideboard or anything else and whether she might now go to bed.
>
> He was engaged in reading a book and about an hour or so afterwards heard a scratch or scream upstairs and went to know what it was. He called the manservant Speed, who went upstairs with him. He found the door fast and called the little girl to open it. She answered that she was afraid or frightened and could not. Before he went up he thought he heard her kicking under the bed. He forced the door and pulled the girl from under the bed, who seemed in convulsions and desired Speed to take her down to the open air and to sprinkle and give her a little cold water. However, the endeavour was in vain to recover her (he had taken her into the kitchen). She only moaned which soon after ceased. Captain Bell then ordered her to be taken into the little parlour, where I first saw her.
>
> Mrs. B. he supposed at first to be in a Hysterical Fit, which she was subject to and expected she would recover as usual in a short time. However, he went up several times while Speed was attending to the little girl and returned, saying that Mrs. B. was in the same state as the little girl, and at last found her all cold except her stomach, and at last was convinced from there being no respiration or motion that she was dead. He could give no trace as to the cause of the occurrence.
>
> I found no external marks of wounds or contusions about the bodies; neither was there any smell to lead to suspicion of the poison which they seemed evidently to have died of. On the contrary, their mouths were clean and the smell less than what might have been expected from persons in the best of health. I then stated to Captain Bell the awful nature of the accident would occasion a great alarm and interest in the minds of the public and that as a full investigation would be made that a further evidence than mine would be required and I requested Dr. Turnbull be sent for. Dr. Turnbull and Mr. Connolly [the Roman Catholic priest] arrived in about forty minutes, 1¼" past twelve or 10 minutes to one o'clock.
>
> We then began to examine the body of the child and could discover nothing worth remark and proceeded to the body of Mrs. B. The pupils were even more than naturally dilated, as also that of the child. No external marks of injury or convulsions about the head. Her urine was a good deal discoloured from her having had her Catamenia on in the day. Seemed [?] to have voided urine involuntarily, which was also the case with the little girl. We then proceeded to search the house if any remains or appearance of poison could be found, but none on which we could place a suspicion except a tumbler with a fluid in it resembling a little coffee and water, which smelled and tasted like Laudanum. About an hour after this the little girl's brother happened by accident to be mentioned, which induced me to request that he might be immediately seen, fearful of his being dead also, particularly as he eat with his sister. He was found in the kitchen loft, where the men servants sleep, sick with a bucket under his head, in which he had been vomiting. This substance looked like Irish Stew, thick with little or no fluid. I asked him what was the matter. He said he was sick and could not move his legs or arms, that he had a great dryness of the mouth and throat. He said he had eat fish to supper of some that his Mrs. and sister had, as also the men. I called for some Castor Oil and Brandy and endeavoured to administer it, but he could not be directed, being unable to swallow. We then opened the Jugular vein, as the face and eyes seemed much oppressed, but without being able to obtain any blood, and in about ten minutes he died without a small tremor of all the body.
>
> We also found in the same place the gardener Smith, whom we roused with some difficulty, who stated he felt queerish and could not move his lower extremities. He had not been sick, neither had he vomited. He was ordered a strong dose of the Sulphate of Zinc and Brandy, which after soon induced vomiting, which after vomiting was followed up by giving a dose of Castor Oil and giving a little Brandy and water, which evidently removed to a great extent the sedative effects of the fish and at last he seemed to get much better. The three other man servants to Captain Bell also stated that they had eat of that fish and that they felt a little sick and were according ordered a strong glass of Brandy to allay the irritation in a small degree from the emetic and Brandy. Gave him [the gardener ?] two grains of

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Opium, which soon afforded him much ease and rest. In the pantry was found a pie dish with about a dozen of Toad Fish, gutted with their [thin ?] livers like fat and which was a part of the fish they had taken.

The news of this sad happening must have created considerable concern, and Mr. G. W. T. Boyes, Auditor of Civil Accounts and Deputy Assistant Com. General, makes this comment in his diary on March 25, 1831:

> Heard of the death of Mrs. Bell and two children (not hers) of poison. They had eaten of the Toad Fish (of which it is probable Captain Bell would have taken part if he had not accidently dined out) and in two or three hours were corpses. Summoned to attend the inquest held upon them, but I declined going and it was fortunate on two accounts. First, they met at seven in the evening and did not separate, and then by adjournment until seven in the morning. Second, during the sitting on Tuesday, the Colonial Secretary prevented one of their members from joining (Mr. Emmett) and indignant at such treatment they wrote, at least Gellibrand who was Foreman did and they all signed it, a strong letter of remonstrance to the Colonial Secretary complaining of the illegal interference, which letter I understand was never noticed, at least never answered.

James Ross, Esquire, LL.D., editor of the *Courier*, interested himself in the matter, and a few weeks later published in his *Almanack* for 1832 an article entitled "On the Poisonous Toad Fish of Van Diemen's Land, communicated by James Scott, Esq., R.N., Colonial Surgeon". It was accompanied by an illustration of the fish from a drawing or painting by W. H. Gould, the convict artist (Figure VIII). The communication was as follows.

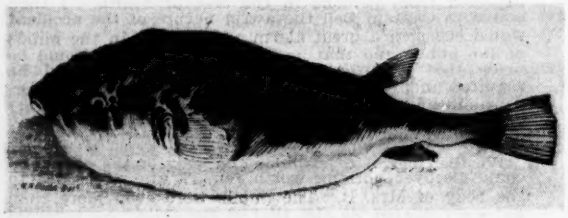

FIGURE VIII.
The poisonous toad fish of Van Diemen's Land.

> The fish of which I send you a delineation, is found in the bays and shores of Van Diemen's Land and is supposed to be a species of the Toad Fish. The melancholy and dreadful effect produced by eating it was lately instanced in the neighbourhood of Hobart Town, on the Lady of one of the most respectable merchants and two children who died in the course of three hours, without being able to give any notice of their danger, and several servants were only saved by the timely discovery of the death of their mistress and their fellow servant's children.
>
> The Poison is of a powerfully sedative nature, producing stupor, loss of power of speech, deglutition, vision and the power of the voluntary muscles, and ultimately an entire deprivation of nervous power and death. At the inquest over the above bodies the effect of the poison was satisfactorily proved by giving part of the fish left by the unfortunate individuals to two cats, which both soon became affected. When both were in a dying state, one had twenty-five drops of the Arsenical Solution introduced with a silver tube into the stomach and rapidly recovered, while the other, which was allowed to take its chance, quickly died.
>
> The bodies at death were placid and blanched, with no fœtor but rather a smell like that of new hay, particularly about the mouth; but in about twelve hours they became livid and swollen, with bloody serum coming from all the external parts, intolerably fœtid, and rapidly running into decomposition.
>
> The general size of the fish is about five inches in length, the girth is great in proportion to the length, the back is of the colour and spotted like Tortoise Shell and the belly of a white kid skin feel and appearance. The animal has one Ventral Fin posterior to the Anus, one Caudal and two Pectoral. The tail is perpendicular, the Gills are anterior to the Pectoral Fins and are about 3/8 inch in length and of a semilunar form. The eyes are rather large and prominent like that of the Toad, the nares are anterior to the eyes.

A similar fatality by which two children lost their lives occurred early this year at Castle Forbes Bay, southern Tasmania. They had died after eating fish caught in the nearby river. The report just given was made available to the coroner, and toad fish caught where the children had been fishing were fed to two cats. No antidote was tried, as in Scott's experiment, and both cats died. But, it will be agreed, quite enough has been written of this sad event.

From the evening of the tragedy at Captain Bell's to June 16, 1831, when the journal ends, there are only routine entries and nothing of sufficient interest to describe.

The Final Years.

Scott, now in his forty-first year and well established in practice, should have been assured of a long and distinguished career, but in reality only some six years remained to him. It is not the purpose of this narrative to follow his administration, which may be done from official files, but some of the occasional notices of his activities in the daily Press are of considerable interest. There is, for example, this account of an extraordinary civil action, in which with his friend Dr. Turnbull he was a principal (*Hobart Town Courier*, December 6, 1832).

> The attention of the Supreme Court was occupied the whole of Wednesday with an action for trespass brought by Mr. Tuckwell, the Coach Builder at the Market Place, against Dr. Scott and Constable Richard. A female servant of Dr. Scott, named Janet Anderson, having absconded from her service, and Dr. Scott having been informed that she had entered Mr. Tuckwell's home, went thither in consequence in search of her. Dr. Turnbull and Richard being included among the defendants, Dr. Scott could not avail himself of their evidence in his favour, and the Plaintiff having proved his case, the Judge and Assessors (Captain Bell and Mr. Beaumont) gave a verdict in his favour. Damages sixpence. The case was to have been tried by a Jury, but owing to some informality through which the Jurymen were not empanelled it could not be done and His Honour found it incumbent on him to fine the Sheriff in the Penalty of £100.0.0. Mr. Gellibrand and Mr. Rowlands conducted the Plaintiff's case and Mr. Ross and Mr. Young appeared for Dr. Scott, while Dr. Turnbull conducted his own defence, which, considering it was out of the line of his profession, he did in a very masterly way, arguing various points of law and evidence with considerable skill and aptness.

This was not unsatisfactory really for Scott and his friend—a nominal fine of sixpence only and no mention of costs. It had not gone so happily for the unfortunate sheriff, Dudley Feredey. The savage penalty of £100 for his lapse—"some informality"—would have been a very considerable part of his year's salary. The disparity between these sentences imposed by the Honourable John Lewes Pedder, of the Middle Temple, and his two assessors occasioned no comment in the Press. The penalties suffered by Bent and Melville were still too well remembered for their example to be followed.

A few weeks later the same paper, in this short paragraph, directed the attention of its readers to Scott's interest in natural science:

> We are pleased to see that one of the numerous non-descript but beautiful plants of this Island, recently collected by our Colonial Surgeon, Dr. Scott, enriches the last number of Curtis' splendidly embellished Botanical Magazine.

The enmity between my great-grandfather and Scott has already been mentioned, and an uneasy truce was broken in October, 1832, when the former petitioned J. Burnett, Esquire, the Colonial Secretary, in order that his own and other *bona fide* medical pupils should be permitted to attend the colonial hospital "and be present at all surgical operations and dissections of subjects given over by the laws for that purpose". The bitter controversy that followed the flat refusal of any such concessions by Scott has been told in some detail elsewhere (Crowther, 1952). Five months later Crowther again approached the Colonial Secretary with a formal complaint that one of his patients had been

caused unnecessary suffering by the use of an unclean scourge when flogged at the triangles. He claimed that the man, John Brooks, had been doubly punished by the pain and disability following the huge slough on his back that resulted. This correspondence, which also concerns James Scott, is of sufficient interest to attach as an appendix.

Ross's *Almanack* for 1835 contains an article by Scott, illustrated by an engraving of Thomas Bock, on the teeth of the platypus. Brief as it is, it is worthy of mention. In this year, too, the convict transport *George* III was lost on the Acteon Reef, at the entrance of D'Entrecasteaux Channel, at the very end of her long voyage, and 127 of the 220 convicts on board, with a woman, three children and two seamen, were drowned. The unfortunate convicts confined below were given no opportunity to escape, as it was feared they would panic and seize and overturn the ship's boats. Gregor McGregor, of the 51st Regiment, assistant surgeon to the ship, lost his life after safely reaching the shore. His tomb in Saint David's Park, a tribute from his brother officers, bears this epitaph:

> He was wrecked when just on the eve of completing his voyage from England to V.D. Land, on the night of the 12th April, 1835, on the convict ship George III, which was lost by striking upon a rock near the Acteon Reef. After escaping the horrors of the wreck he unhappily wandered along into the woods the following day from the party with whom he was saved; when losing himself he was not discovered until in a state of extreme exhaustion, from which he never recovered but gradually declined and a few days after closed his valuable life.

A major outbreak of scurvy, with a number of fatalities, had occurred on the ship after leaving Cape Town, and the Lieutenant-Governor directed that a board consisting of the Colonial Surgeon (James Scott), Assistant Surgeon Bedford and Assistant Surgeon MacBraire "shall assemble forthwith to report on the causes of the extensive Scurvy which prevailed on board the Transport George the Third".

The board, assisted by a detailed and comprehensive report from Dr. Wyse, surgeon of the ship, and evidence from Dr. Thompson, of the transport *New Grove*, found as follows. The outbreak was consequent upon the leakiness of the *George III*, a deficiency in warm clothing and an utter loathing of the cocoa issued. It drew attention also to the reduced allowance of lime juice and medical comforts, as well as the bad quality of the latter articles.

In this year, too, Scott's long administration came to an end with the appointment of Dr. John Arthur as Deputy Inspector-General and Principal Medical Officer of Hospitals, with the general control of the medical services. It was to matter little as he was nearing his end, which took place in 1837. Dr. Bedford, writing on October 7 to their former pupil and friend Dr. E. C. Hobson, then at University College Hospital, described his last illness in these terms:

> I regret to have to tell you of a great loss you have sustained in the death of poor Scott. He died on July 21st after three weeks' confinement in bed from Pyloric Disease. The Tumor could be felt and his case was distinct for four months prior.

The *Hobart Town Courier*, mentioning his death as after a "severe and protracted illness", gives this account of his burial:

> The funeral of the late lamented Colonial Surgeon, Dr. James Scott, took place on Wednesday last. The body, which had previously been conveyed to St. David's Church, was from thence to the vault prepared for its reception, attended by the Lt.-Governor, the Members of the Legislative Council, together with a numerous cortege of public and private friends. We should say that there could not have been fewer than 250 persons in the melancholy train which followed the remains to the grave. The sympathy expressed on this occasion is not confined to any rank or station; all classes seem to participate in one common feeling of regret for a loss which will not only be deeply felt, but will not easily be supplied.

Mrs. Scott came to be buried by him some seven years later, and their tombstones, with that of her mother, Mrs. Davey, are still to be seen in Saint David's Park.

Conclusion.

James Scott will be remembered from his writings and other sources as a wise physician, courageous surgeon and able, if autocratic, official. As Senior Colonial Surgeon to the administrations of Colonel Sorell and Colonel Arthur, he was responsible for their policies and the development of the medical services of the rapidly expanding colony. It may well be that the respect and esteem so long afforded our profession in Tasmania were in the first instance determined by his personal integrity, professional ability and social distinction.

It has been my rare privilege tonight, Mr. President, to present this brief appreciation of Dr. James Scott, some of his patients and his methods of practice, to yourself, your Fellows and Members, and your guests.

Acknowledgement.

I wish to make acknowledgement in the first place to Mr. W. Dennistoun Scott, of London, who presented the journal to the Trustees of the Tasmanian Museum, and as well kindly afforded additional information as to his family; also to the Trustees of the Museum for permission to make use of the Scott material and the Boyes diary. The faithful reproduction of the illustrations, from their originals, is the skilled work of Dr. D. J. Rae, while Mr. R. Sharman, of the State Archives, has given material help from that source. The extracts from the journal of Colonel Macquarie are from a transcript made many years ago by my friend the late William Walker, with the permission of the Mitchell Library.

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Appendix.

Mr. Crowther respectfully solicits of J. Burnett, Esq., Colonial Secretary, that the enclosed important document may have an early presentation to His Excellency Colonel Arthur.

March 1, 1833.

His Excellency Colonel Arthur.

Sir,

My Professional Duty demands of me to inform His Majesty's Government of the injurious habit to which the flagellator at the Triangles is accustomed, in allowing the Knouts, or Cats, to remain in a dirty state after the punishment inflicted, and thus the next unfortunate is doubly punished by having wounds inflicted with envenomed prutescence [*sic*] of the encrusted mass.

The present instance will suffice. John Brooks, per *Ship John, assigned to Mr. Wells of Davey Street*, was flogged on Monday fortnight. The Knout, or Cat, had never been cleaned since the flagellation of the preceding Saturday, and his back now presents a mass of the most frightful slough.

Your Excellency will be pleased I have no doubt, to see this man personally, to arrest the progress of such a system.

I have the honor to be, Sir,

Your v. obedient, humble servant,

WILLIAM CROWTHER.

Undated Minute, by John Burnett.—Dr. Crowther considers it his duty to bring to the notice of the Government that in consequence of the scourge used in the punishment of the Prisoners not being properly cleaned, and there consequently remaining on it an encrusted putrescent mass, the most injurious consequences arise to those on whom the punishment is inflicted. He gives as proof of this the case of John Brooks, who was flogged on Monday, and the scourge not having been cleaned since the preceding Saturday, his back presents a mass of most frightful slough. Mr. Gunn states in explanation that when men are flogged a Medical Officer is present and the scourge is washed *"when dirty"*; and, in the case of Brooks, he considers the evil to have arisen from the state of his health and the want of cleanliness on his own part.—J.B.

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Minute by the Lieutenant-Governor.—This should of course have been referred to the Colonial Surgeon, who will of course take care that the officers of his department properly superintend all punishments.

Acknowledge and inform Mr. Crowther that the attention of the Colonial Surgeon has been called to the subject of his representation.—G.A., 13 March, '33.

Minute by the Colonial Secretary.—Referred to the Colonial Surgeon (to be returned).—J.B., 14 March.

Minute by Colonial Surgeon.—This is a very officious interference on the part of Mr. Crowther, and is done more from a malicious motive than from any good feeling which he seems anxious to show. The Medical Officers who superintend the punishments are fully competent and discriminate to report and prevent any such circumstances as Mr. C. has stated were it to be the case, which cannot be admitted.—J. Scott, 14 March, 1833.

[It seems that the Colonial Secretary had obtained information from the Police Department before adding his undated minute and submitting the document, with their remarks, to Colonel Arthur.]

Minute by Colonial Secretary.—Referred for the report of the Chief Police Magistrate.—J.B., 1 March, '33.

Minute by Chief Police Magistrate.—Referred to Mr. Gunn for explanation.—M. Forster, 2nd March, 1833.

Minute by the Superintendent of the Prisoners' Barracks, Hobart Town.—No man is punished without a Medical Officer being present, and in the instance here complained of I beg to state that the Cats are washed after punishment when dirty, but the more probable cause is the state of the man's [Brooks] health and the manner in which he has kept his back since being flogged.—W. Gunn, 2 March.

Minute by Chief Police Magistrate to the Colonial Secretary.—Transmitted with Mr. Gunn's explanation.—M. Forster, 4th March, 1833.

THE EFFECT OF "AMPARON" UPON THE ASCORBIC ACID CONCENTRATION IN THE ADRENAL GLANDS OF HYPOPHYSECTOMIZED RATS.

By L. A. G. HISSINK, M.D.

From the Department of Pathology, Prince Henry Hospital, Sydney.

IN a recent report on the ability of "Amparon" to induce eosinopenia in hypophysectomized rats (Hissink, 1953) consideration was given to the possibility that the hydrolysate might possess adrenocorticotropic activities.

One method of studying this possibility is the adrenal ascorbic acid test of Sayers *et alii* (1948). Although this test is the official basis for the estimation of the corticotropin (ACTH) content of pituitary fractions (Editorial, 1951), it seems that the presence of ascorbic acid in the adrenals is not essential for the production of adrenocortical hormones (Sayers, 1950). On the other hand, there is abundant evidence that ascorbic acid activity does not necessarily run parallel with all or any of the other effects of pituitary extracts—for example, adrenal maintenance, adrenal repair, eosinopenia, thymolytic and lympholytic effects, clinical response (Reinhardt and Li, 1951; Li *et alii*, quoted by Forsham, *et alii*, 1952). Nevertheless, it was convenient to use the Sayers test for investigating possible adrenocorticotropic activities of "Amparon".

Experimental Investigation.

Male white rats of Wistar origin weighing 100 to 150 grammes each were hypophysectomized and treated as described in a previous communication (Hissink, 1953*b*). In the bioassays (performed during the first post-operative day) each rat was superficially anæsthetized with ether, then the left adrenal was approached transperitoneally via a median laparotomy incision and removed. "Amparon", chemically prepared fractions of "Amparon", or one of the control fluids was then injected into the inferior *vena cava*. Each injection was given in a volume related to the weight of the animal at the time of the assay—namely, 0·5 millilitre per 100 grammes. The abdominal wound was closed with clips and the animal was returned to its cage. One hour later the rat was sacrificed (an overdose of chloroform was given), the right adrenal was removed and a "head-check" was made to judge the completeness of the hypophysectomy. When macroscopically visible pituitary remnants or adrenals obviously devoid of lipoid were observed in an animal, the results from that animal were discarded. Immediately after removal from the animal, each adrenal was macerated in meta-phosphoric acid solution, and the ascorbic acid in the extract was determined by the method of Mindlin and Butler (1938). Ascorbic acid concentrations were reported in microgrammes per 100 milligrammes of adrenal tissue, and the response of each animal was calculated as the concentration of ascorbic acid in the right adrenal *minus* that in the left adrenal expressed as a percentage of the concentration in the left adrenal.

Approximately 150 rats were used in six bioassays, which were carried out by an experienced team from the ACTH Research Unit of the Department of Biochemistry. There was substantial day to day variation in the rats' responses, so it was essential to include suitable controls and to consider each assay as a separate experiment. According to requirements, control animals received "acid saline" (1% sodium chloride solution in N/300 hydrochloric acid), 15% glucose solution, United States Pharmacopœia corticotropin (ACTH) reference standard in doses ranging from 0·0003 to 0·002 international ACTH unit, or cortisone acetate (0·9 milligramme per animal). "Amparon" was used (*a*) in its original form, (*b*) after being concentrated to one-fifth or (*c*) to one-third of its original volume by evaporation at 90° C., and (*d*) after "fractionation" with oxycellulose. For the oxycellulose treatment a portion of "Amparon" was acidified with 1/170 its volume of glacial acetic acid and the mixture was then treated with oxycellulose (Tennessee Eastman) in the same way as for the preparation of corticotropin from crude extracts of pituitary glands (Bartholomew, 1953). The eluate from the oxycellulose and the residual unadsorbed fraction were both examined for ascorbic acid activity.

Results.

In the first bioassay the effects of acid saline, "Amparon" and two different dosages of ACTH were studied. The mean responses to ACTH in this and subsequent trials ranged, according to dosage, from about −10% to −40%; but the details are unnecessary in a discussion of the activity of "Amparon". The following is a statistical summary[1] of those results which are relevant to the discussion:

Control animals (7) treated with saline, mean response: +6·8% ± 5·8% standard deviation;

Animals (6) treated with "Amparon", mean response: −2·2% ± 3·5% standard deviation;

$t = 3{\cdot}347$; $P < 0{\cdot}01$.

In a second bioassay concentrated "Amparon" (five times normal strength) was compared with saline and with ACTH. The statistics for the responses are as follows:

Control animals (6) treated with saline, mean response: +10·3% ± 11·3% standard deviation;

Animals (6) treated with concentrated "Amparon" (X5), mean response: −3·6% ± 12·4% standard deviation;

$t = 2{\cdot}024$; $P < 0{\cdot}1$.

Each group in this assay (including even those receiving ACTH) showed an unusually wide scatter of reactions; but there was nevertheless a considerable difference between control animals injected with saline and animals injected with ACTH. The saline-treated rats showed in most instances slight increases in the ascorbic acid concentrations of the adrenals with a crude average response of +3·2%. "Amparon" induced mainly decreases in the concentration with a crude average response of −9·8%.

[1] In these calculations a response was considered abnormal (and discarded) if its contribution to the variance exceeded the sum of all other responses in the group (Sealy and Sondern, 1940). Seven responses in the whole series of assays were discarded for this reason.

The increase in the adrenal ascorbic acid concentrations after the injection of saline solutions in the two groups of animals suggested some influence from the intravascularly injected sodium chloride, although rats usually drank much of the 1% sodium chloride and 5% glucose solution drinking water during the eighteen to twenty-four post-operative hours before the assays were performed. A direct comparison of acid saline and glucose was therefore made.

It is clear from the following results that there was no difference between responses to the respective saline and glucose solutions; neither induced any significant change in the ascorbic acid concentration:

Control animals (4) treated with saline, mean response: −1·3% ± 4·9% standard deviation;

Animals (4) treated with 15% glucose, mean response: +1·8% ± 4·9% standard deviation.

The slight decreases in the concentration of ascorbic acid after the injection of "Amparon" (first and second bioassays) made it worth while to find out if such "activities" could be separated by adsorption on oxycellulose, as is done with ACTH. In the fourth bioassay

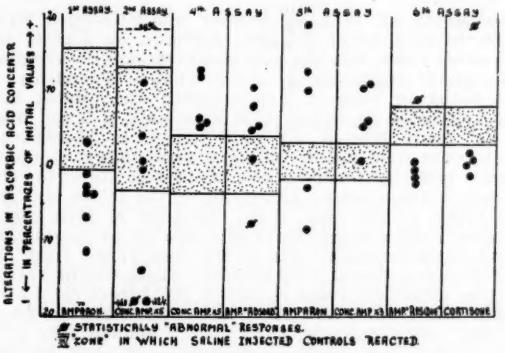

FIGURE I.

Alterations in adrenal ascorbic acid concentration in hypophysectomized rats after injection with various "Amparon" preparations and cortisone.

"Amparon-oxycellulose eluate" and concentrated "Amparon" (five times normal) were compared with saline and two different dosages of ACTH. The results are summarized below:

Control animals (5) treated with saline, mean response: +0·3% ± 4·1% standard deviation;

Animals (5) treated with concentrated "Amparon" (X5), mean response: +8·2% ± 3·7% standard deviation; $t = 3·837$; $P < 0·01$.

Animals (5) treated with "Amparon" eluate, mean response: +5·5% ± 3·2% standard deviation; $t = 2·61$; $P < 0·05$.

Saline did not induce any significant alteration in the ascorbic acid concentration, most animals reacting with slight increases. Concentrated "Amparon" this time induced significant increases in all the animals. The "Amparon-oxycellulose eluate" induced mostly increases, and only one animal showed a decrease (−7·8%), so that in this bioassay there is no indication of ascorbic acid depleting activities of "Amparon".

In a fifth bioassay "Amparon" and concentrated "Amparon" (three times normal) were compared with saline and two dosages of ACTH. The following is a summary of the results:

Control animals (4) treated with saline, mean response: +0·5% ± 2·0% standard deviation;

Animals (5) treated with "Amparon", mean response: +5·5% ± 11·1% standard deviation; $t = 0·888$; $P < 0·5$.

Animals (5) treated with "Amparon" (X3), mean response: +6·6% ± 4·6% standard deviation; $t = 2·368$; $P < 0·05$.

The responses to "Amparon" included both increases and decreases in the concentration of ascorbic acid; but each of these responses was either above or below the range of responses of the control animals injected with saline. The concentrated "Amparon", however, induced increases in all animals.

In the sixth bioassay the "residual unadsorbed fraction of 'Amparon'" was compared with saline, cortisone and two different dosages of ACTH. The following is a summary of the results:

Control animals (4) treated with saline, mean response: +6·7% ± 2·5% standard deviation;

Animals (4) treated with "residual fraction", mean response: −1·1% ± 1·9% standard deviation; $t = 4·935$; $P < 0·01$.

Animals (4) treated with cortisone, mean response: +0·6% ± 1·9% standard deviation; $t = 3·405$; $P < 0·02$.

It may be seen that the "residual fraction" and cortisone responses showed a striking similarity, both materials inducing responses in the ascorbic acid concentrations which were slightly below those of saline-injected rats.

Discussion.

In these experiments saline or glucose had little effect upon the adrenal concentration of ascorbic acid, but in most instances caused a slight increase. "Amparon", on the other hand, caused slight decreases, rather significant increases, or both. In all but two groups of animals, the "Amparon" responses did not show much scatter, but it may be seen from Figure I, in which all "Amparon" reactions are recorded, that these reactions differed from group to group. Also, the "Amparon" responses covered an area wider than and different from that of saline responses. In this figure control reactions after the injection of saline solutions are represented by two lines between which such reactions took place. The position of the lines of the "control zone" changes from section to section, thereby representing the rather regular and consistent character of control reactions in all bioassays. Of the 40 "Amparon"-treated rats, 33 reacted with responses above or below this "saline" zone. About half of these 33 responses are found above the "zone" and about half below it. This peculiar scatter of "Amparon" responses suggests the involvement of two different kinds of effects upon ascorbic acid concentrations, which have opposite directions. The complex character of the casein hydrolysate favours the view that the mixture may have more than one substance with "ascorbic acid activity". By "ascorbic acid activity" is meant the ability to alter ascorbic acid concentrations in the adrenals of hypophysectomized rats in either direction under the conditions of these experiments. It seems that unknown variations in the conditions of similarly treated rats have influenced the direction in which most reactions took place. In most bioassays mainly increases or decreases in ascorbic acid concentrations occurred. In some studies both reactions were observed in the one group of rats. It does not seem that antagonistic mechanisms compete in such a way that zero responses resulted—that is, with reactions in the "control zones".

Treatment of "Amparon" with oxycellulose failed to concentrate any ascorbic acid depleting property on the oxycellulose. On the contrary, the eluate from the oxycellulose induced slight increases in ascorbic acid concentration as compared with saline reactions of the same day. The "residual fraction" of "Amparon" treated with oxycellulose, tested on another day, showed slight decreases in ascorbic acid concentrations. It may be seen in Figure I (sections 3, 4 and 7) that the respective control zones moved in opposite directions, so that it is not likely that differences between responses to the injection of the two "Amparon" fractions were due to alterations in the con-

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ditions of the animals which induced slight differences in saline responses. These results suggest that the oxycellulose adsorbed a fraction which was active in increasing ascorbic acid concentrations, but the difference between the responses to "Amparon" eluate and to saline was not significant ($P < 0.05$); so there is no firm support for such a view.

Another interesting fact is that in the last bioassay "Amparon" and cortisone induced strikingly similar responses. Although such an effect of cortisone cannot be explained at present, it is not impossible that this adrenal steroid affects the activities of the adrenocortical tissues in a specific way. "Amparon" for similar reasons may have "cortisone-like" activities under these experimental conditions, and rather significant increases in adrenal ascorbic acid concentration after the injection of "Amparon" may represent "adrenocortical sparing" effects. Further investigation is necessary to find out if cortisone effects on the ascorbic acid concentrations in the adrenals of hypophysectomized rats will show the same peculiar scatter above and below the control zone as was observed with "Amparon" injections. The one animal which reacted with a significant increase in adrenal ascorbic acid concentration after cortisone may reflect such a tendency. The remarkable successes of the casein hydrolysate in the treatment of some patients with traumatic shock who did not react favourably to blood transfusions (Hissink, 1950, 1948) may be due to "adrenocortical sparing" effects of the preparation.

While these experiments do not provide evidence for the view that "Amparon" may possess adrenocorticotropic activities of the type possessed by ACTH, such a view cannot be entirely discarded. With regard to adrenocorticotropic activities and amino material, it is interesting to note that Brink *et alii* (1953) claim to have identified the activity of "corticotropin B" with a pure polypeptide consisting of 14 amino acids.

Summary.

The effect of "Amparon" on the concentration of ascorbic acid in the adrenals of hypophysectomized rats is compared with different control responses which were obtained by the use of "ascorbic acid inactive" materials such as saline and glucose solutions on the one hand and "ascorbic acid active" substances such as ACTH on the other. It is shown that responses to "Amparon" differ from those due to inactive materials. However, the hydrolysate did not cause responses even approaching the magnitude of those due to ACTH, and oxycellulose treatment failed to separate ascorbic acid depleting activities from the hydrolysate.

It was found that "Amparon" showed reactions with a striking similarity to those found after the injection of cortisone, which caused slight decreases in the ascorbic acid concentration. It is suggested that "Amparon" may have cortisone-like activities and "adrenocortical sparing" effects.

Acknowledgements.

The writer is much indebted to Mr. R. J. Bartholomew, of the Department of Biochemistry, and his staff for help with this work.

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HYPERTROPHIED HEARTS NOT DUE TO VALVULAR OR RENAL DISEASE: I.

By J. B. CLELAND, C.B.E., M.D.,

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ON March 24, 1952, an autopsy was performed at the Repatriation General Hospital, Adelaide, on a man, aged fifty-seven years, who had been admitted with the symptoms and signs of cardiac failure and who had died suddenly. He was found to have an hypertrophied and dilated heart which weighed 26 ounces (655 grammes), a large infarct in the lower lobe of the right lung with 30 ounces of fluid in the right pleural cavity, a small infarct in the left lung, a small ante-mortem clot in the recesses of the right auricle, chronic venous congestion of the spleen and some congestion of the liver, some dilatation of both ureters, possibly from a projecting middle lobe of the prostate, and some emphysematous bullæ at the apex of the right lung. The coronary vessels were healthy. There was no valvular and no structural renal cause for the hypertrophy of the heart, which was considerably more than twice the normal weight. An inquiry into his history showed that at the age of thirty-two years, on September 22, 1927, his blood pressure was 160 millimetres of mercury, systolic, and 102 millimetres, diastolic, and on September 12, 1932, it was 150 millimetres of mercury, systolic, and 80 millimetres, diastolic. In December, 1950, he was in the Royal Adelaide Hospital and had his gall-bladder removed; his blood pressure then was 140 millimetres of mercury, systolic, and 75 millimetres, diastolic. On March 14, 1952, after his admission to the Repatriation General Hospital, the blood pressure was 110 millimetres of mercury, systolic, and 90 millimetres, diastolic, and five days later it was 105 millimetres of mercury, systolic, and 80 millimetres, diastolic. From these figures it seems reasonably certain that the hypertrophy of his heart was not due to essential hypertension. Whatever the cause of the hypertrophy, it seems eventually to have been insufficient to maintain an adequate circulation. This has again focused attention on hypertrophied hearts as found at post-mortem examinations.

In 4·4% of adults (see Table I) who die in the Royal Adelaide Hospital and who come to autopsy, the cause of death has been failure of an hypertrophied heart without any valvular or obvious renal cause for the hypertrophy. Many of these hearts are twice the normal weight, and some may be three times. The hypertrophy has thus been considerable, in some cases one may almost say great. It seems legitimate to infer that this muscular hypertrophy has been the result of increased work.

Essential hypertension would necessitate increased cardiac effort; but in some of these cases there has been no evidence of high blood pressure during the subjects' final hospital stay, and in some instances examinations made a few years before death did not then reveal the presence of hypertension. Essential hypertension probably does explain the hypertrophy in most cases; but there seems to be a moiety left for which some other cause must be found. What is it? For myself, I cannot suggest an adequate one, nor have my colleagues been able to help me.

I would emphasize the fact that in this 4·4% of subjects the heart has been unable to perform the work required of it. It is not just a large heart, as may occur in acromegaly, but a large heart which has had too much to do and has failed to accomplish what was required of it.

Not included in the foregoing figure are about 2·2% of persons with infarction of the heart muscle whose hearts were hypertrophied. For a heart to undergo hypertrophy, an increased blood supply is necessary. All these enlarged hearts have coronary vessels correspondingly enlarged. If the coronary arteries cannot increase in size, as from severe atheromatous changes, then appreciable hypertrophy cannot occur. In spite of the larger size of the coronary arteries in these hypertrophied hearts, atheroma and its consequences have resulted in infarction of the heart muscle and death.

TABLE I.

Hypertrophied Hearts, not due to Valvular or Renal Causes, in the Seventh Thousand Post-Mortem Examinations at the Royal Adelaide Hospital, 1946 to 1948.[1]

Condition Found.	Male Subjects.	Female Subjects.	Total.
Hypertrophied and dilated heart	34	10	44 (4·4%)
Hypertrophied heart only	29	8	37 (3·7%)
Hypertrophied heart and cardiac infarction	17	5	22 (2·2%)
Hypertrophied heart and fibrosis of heart muscle	22	0	22 (2·2%)
Hypertrophied heart and cerebral hæmorrhage	18	6	24 (2·4%)
Total	120	29	149[2] (14·9%)

[1] Tabulated in *The Medical and Scientific Archives of the Royal Adelaide Hospital* (1948), Number 48.

[2] A proportion of four males to one female.

Another 2·2% of subjects had hypertrophied hearts and fibrosis of the heart muscle. It must be stated that the fibrosis in these cases cannot possibly explain the increase in weight. Again, in 2·4% of cases there has been cerebral hæmorrhage with an hypertrophied heart and no appreciable renal fibrosis—most of these subjects probably had had hypertension. Finally, in 3·7% of cases we have hypertrophied hearts which have not yet failed and in which the subject has died from causes other than those mentioned above.

Thus no less than 14·9% of 1000 subjects examined *post mortem* at the Royal Adelaide Hospital had hypertrophied hearts not due to valvular or renal causes.

Acknowledgements.

I should like to express my thanks to the Chairman of the Repatriation Commission for permission to publish this article, and to Dr. T. P. Dearlove for the clinical information.

Reports of Cases.

ANURIA: REPORT OF A CASE, WITH DISCUSSION OF THERAPY.

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Sydney.

THE treatment of disordered metabolic states has become more rational and more effective with increasing knowledge in recent years of fluid and electrolyte behaviour, and of satisfactory methods of controlling them. We consider that the following record of a case of lower nephron nephrosis is of interest both therapeutically and clinically, when compared and contrasted with previous cases of anuria at the Royal Prince Alfred Hospital, Sydney.

In the past four years in the obstetrical department, and in the past two years in the gynæcological and general departments, we have been able to trace eight cases of anuria, excluding cases of urinary tract obstruction. The principal features of these eight cases are set out in Table I. The prognosis for the anuric patient has been poor, as only one of the eight has survived, even when allowance is made for the fact that three (Cases V, VI and VIII) were cases of primary and probably irreversible renal disease. Five out of the seven deaths were infective in nature, and, though a rising urine output was established in six patients, five of these still died. It will also be seen that the one successfully treated patient had the following four important features: (i) she had the shortest period of anuria; (ii) she had no gross biochemical disturbance in the form of hyperkalæmia or acidosis to contend with; (iii) the height of her diuresis was only 1750 millilitres, so that the dangers of this stage were eliminated; (iv) she had no intravenous therapy.

In the light of these findings, the following broad principles were adopted (some of which had to be greatly modified as time went on).

1. That a careful biochemical check would be kept on the patient by means of daily determinations of blood urea level, chloride content and bicarbonate reserve, and serum sodium, potassium and calcium contents; and that progress electrocardiograms would be obtained.

2. That continuous intravenous therapy—a potent source of infection—would be reduced to a minimum, consistent with adequate treatment.

3. That we should indulge in no "covering" antibiotic therapy in the early stages which might encourage the development of resistant organisms (the patient who perished of malignant endocarditis had in her blood-culture a *Staphylococcus aureus* resistant to all antibiotics).

4. That whatever route of therapy was dictated by circumstances, we should follow closely the principles of all successful modern methods of treatment—namely: (i) restriction of fluid intake to the amount of obligatory water loss *plus* urine output from day to day; (ii) avoidance of exogenous and endogenous protein metabolism, by giving no protein and by providing adequate calories in the form of carbohydrate.

Clinical History.

Mrs. X., aged thirty-seven years, the mother of one child, had a classical Cæsarean section on August 10, 1952 (day 0), for a tonic contraction of the uterus which had failed to relax after forty minutes of chloroform anæsthesia. During operation her pulse became irregular, and after the sudden loss of 1500 millilitres of blood *per vaginam* at the conclusion of the operation, her pulse rate rose to 200 per minute, and her blood pressure became unrecordable. Despite the administration of 1000 millilitres of blood and 500 millilitres of serum during the next hour, her condition remained unchanged. An electrocardiogram showed auricular flutter-fibrillation, for which she was given intravenously digoxin, 0·75 milligramme followed by 0·25 milligramme ninety minutes later; as a result of this her systolic blood pressure rose to 90 millimetres of mercury, and her pulse rate fell to 110 per minute. She was given a further 250 millilitres of serum and 500 millilitres of blood during the next four hours, which raised her systolic blood pressure to 120 millimetres of mercury.

On the following day she looked pale and ill, and was put on a restricted fluid intake (one litre for twenty-four hours), in view of the likelihood of urinary suppression. During that twenty-four hours (day 1) she passed only 200 millilitres of grossly blood-stained urine, and the anuric state was fast being established.

On the morning of August 12 (day 2) she was pale, somewhat disorientated, and hiccupping at intervals. Examination showed her blood pressure to be 135 milli-

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TABLE I.
Previous Cases of Anuria at Royal Prince Alfred Hospital.

Case Number.	Patient's Age. (Years.)	Ætiology.	Period of Anuria. (Days.)	Diuresis.	Treatment.	Result.	Cause of Death.
I	28	Post-abortional *Clostridium welchii* infection.	10	Volume of urine unknown.	Intravenous and oral therapy.	Died on twelfth day.	Acute pulmonary œdema.
II	24	Eclampsia.	5	To 1750 millilitres.	Peanut oil and glucose régime.	Lived.[1]	
III	26	Post-abortional *Clostridium welchii* infection.	13	To 2750 millilitres.	Intravenous and "dilution" therapy.	Died on twenty-eighth day.	Pericarditis and meningitis.
IV	18	"Lysol" abortion.	11	None.	Intravenous therapy.	Died on eleventh day.	*Bacterium coli* septicæmia.
V	47	Subacute nephritis.	19	To 390 millilitres.	Exchange transfusion and oral and intravenous therapy.	Died on twenty-first day.	Hyperkalæmia (13·7 milliequivalents per litre).
VI	49	Subacute nephritis.	17	None.	Peanut oil and glucose régime.	Died on seventeenth day.	Acute suppurative pneumonia.
VII	58	Allergic sulphonamide nephritis.	6	To 2400 millilitres.	Intravenous and "dilution" therapy.	Died on thirtieth day.	Malignant endocarditis from intravenous therapy.
VIII	44	Chronic pyelonephritis and glomerulonephritis.	6	To 1080 millilitres.	Intravenous and oral therapy.	Died on twenty-seventh day.	Bronchopneumonia and chronic renal disease.

[1] No acidosis or electrolyte disturbance.

metres of mercury, systolic, and 95 millimetres, diastolic, and her pulse rate 96 per minute, the pulse being regular in time and amplitude. A triple rhythm was audible at all areas and a systolic murmur at the apex of the heart. She had some œdema of the ankles, but no signs of pulmonary œdema. Her hæmoglobin value was 6·3 grammes *per centum*. Her biochemical findings proved surprising. Less than forty-eight hours after the onset of her illness, her blood urea level was 166 milligrammes *per centum*, her plasma bicarbonate reserve 11·3 milliequivalents per litre, and her serum potassium content 8·5 milliequivalents per litre. An electrocardiogram taken at 3 p.m. was "consistent with near-lethal levels of potassium intoxication", and was indeed a most bizarre tracing (Figure I).

She was given 50 millilitres of 50% glucose solution intravenously every two hours, with five units of soluble insulin intramuscularly at the same time, and 10 millilitres of 10% calcium gluconate solution intravenously every four hours. By 6 p.m. the triple rhythm had disappeared, but she was hiccupping constantly. In addition her pallor had increased throughout the day, and it was postulated that she might have a retroperitoneal hæmorrhage from a ruptured uterus. It was thought that she was moribund.

At 6.30 p.m. an exchange transfusion was begun, but was abandoned on account of technical difficulties after the exchange of 2·5 litres of blood. A further 500 millilitres was left running in to counteract the anæmia. Forty grammes of a cation exchange resin "Natrinil" (no resin specific for potassium was then available) were inserted *per rectum*, and the glucose, insulin and calcium therapy was continued. The patient improved, and an electrocardiogram taken at 11 p.m. showed complete disappearance of the bizarre patterns obtained eight hours earlier.

The next morning (day 3) she looked a little better. None of her cardiac signs had returned. Her serum potassium level had fallen to 5·9 milliequivalents per litre and her serum bicarbonate reserve had risen to 16·7 milliequivalents per litre, but her blood urea level was now 203 milligrammes *per centum*. She had passed less than 75 millilitres of urine in the previous twenty-four hours, and from this a growth of *Bacterium coli* was obtained on culture. It was decided not to use streptomycin for the urinary infection, and so she was given a daily bladder lavage, at first with "Monacrine", and later with sulphadiazine solution. The infection persisted till the seventeenth day.

During this twenty-four hours she received 40% glucose solution orally by day, and 50% glucose solution intravenously by night (into a slowly-running intravenous drip apparatus). Insulin (five units every four hours) and calcium administration was continued as before. The "Natrinil" was removed from the rectum, and 40 grammes of "Zeo-Karb 225" (a sodium series cation exchange resin, specifically removing potassium and calcium), kindly supplied by Dr. R. J. Walsh of the Red Cross Blood Transfusion Service, were given rectally.

On the fourth day she was less responsive, her hiccups continued unabated, and she did not look so well. At 4.30 p.m. a Ryle's tube was passed into her stomach, and a modified Miller-Abbott tube into her small intestine (see appendix). This last step was carried out to allow fluid to be easily given or aspirated, to avoid intravenous therapy, to allow decompression should distension develop, and to permit intestinal dialysis to be performed. (Actually two minor attempts at this last procedure were made, each with one pint of perfusion fluid. In neither case could any fluid be recovered from the intestine, and so the attempts were abandoned.)

With direct access to varying levels of her alimentary tract now established, the very slow intravenous drip therapy was discontinued; 40% glucose solution was given via the Ryle's tube day and night, insulin was continued, and calcium gluconate was given by intermittent intravenous injection.

By the fifth day her condition was fair, and the only abnormal biochemical finding was a blood urea content of 282 milligrammes *per centum*. The progress electrocardiogram was normal. A further 40 grammes of "Zeo-Karb 225" were given *per rectum*.

On the sixth day she looked a little brighter, but the hiccups still continued despite all medical methods of treatment, and threatened frankly to exhaust her. Both phrenic nerves were blocked with local anæsthetic on three occasions during the next two days, with approximately an hour's relief each time; but it was thought that she would be a "bad risk" for bilateral surgical phrenic crush. All told, the hiccups lasted till the twelfth day from the start of her illness, and then ceased spontaneously.

The occasional vomiting of small amounts of material occurred on the seventh and eighth days, and the vomitus was replaced via the Ryle's tube. The only abnormal biochemical findings were a blood urea content of 360

milligrammes *per centum* by the eighth day and some acidosis. The serum potassium content had been kept to normal limits.

On the ninth day two new hazards appeared. In the morning a deep femoral venous thrombosis was found; this

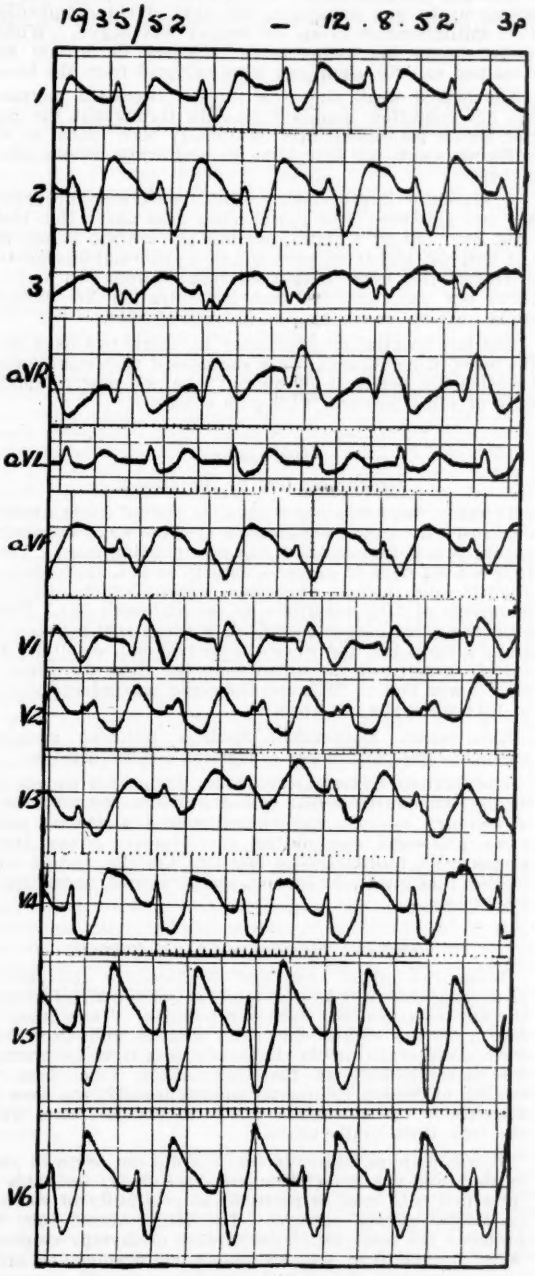

FIGURE I.
Electrocardiogram of Mrs. X. at 3 p.m. on August 12, 1952.

was treated with intravenous heparin therapy. In the evening a frank pericardial friction rub was heard over the base of the heart. In the abscence of any recognized treatment for uræmic pericarditis, cortisone therapy was commenced, and 550 milligrammes were given over the next six days. The friction rub remained audible till the seventeenth day, but she developed no evidence of effusion.

When she passed 345 millilitres of urine on the ninth day, we began to replace fluid output with 2% sodium acetate solution via the Miller-Abbott tube. On the tenth day she passed 525 millilitres of urine, and began to vomit a little more, so all fluids were given down the Miller-Abbott tube, the urine output being replaced with an "artificial extracellular fluid" and obligatory water loss with water or 10% glucose solution. This latter had to be used sparingly and with care, since on several occasions

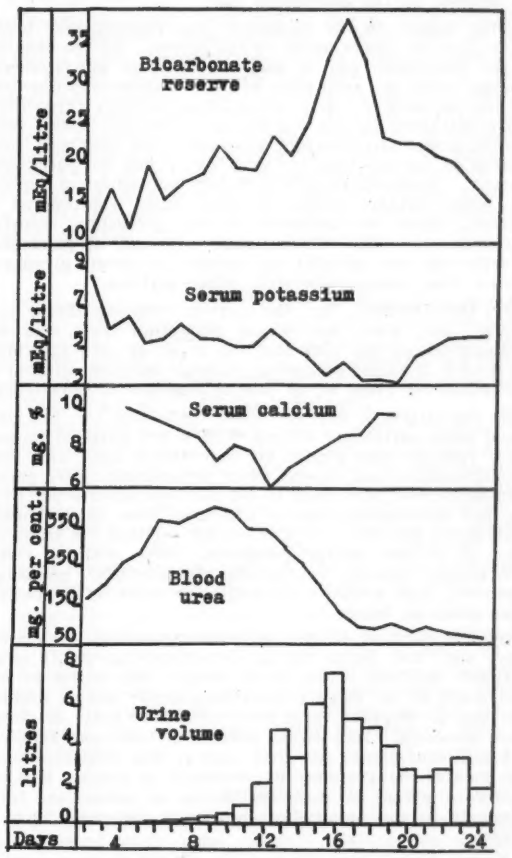

FIGURE II.
Blood chemistry and urine volume for the first twenty-four days of Mrs. X.'s illness.

it provoked massive intestinal activity, with watery diarrhœa. Fluid equivalent to that lost in these liquid stools was promptly replaced by the intestinal tube. The artificial extracellular fluid comprised the following: normal sodium chloride solution 680 millilitres, 2% sodium acetate solution 290 millilitres, 0·15 molar potassium chloride solution 30 millilitres, and 10% calcium gluconate solution 10 millilitres. (This formula was recommended by Dr. C. R. B. Blackburn.)

This treatment was continued throughout the tenth day, on which she looked extremely ill, as well as on the eleventh. On that evening, after a reasonable positive fluid balance had been established, the Miller-Abbott tube was removed. It was removed because of the persistent hiccupping, which actually did cease on the day after its removal.

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The wisdom of this last step was soon open to doubt. She passed 2160 millilitres of urine on the twelfth day, and since she could not take fluids satisfactorily by mouth owing to repeated slight vomiting, two subcutaneous drip apparatuses (with hyaluronidase) were set up, through which the artificial extracellular fluid was given (the calcium gluconate fraction intravenously) at the appropriate rate.

The serum calcium had reached the low level of six milligrammes *per centum* by this twelfth day. It had fallen steadily since the eighth day. It began to rise on the thirteenth day, and had reached 8·8 milligrammes *per centum* by the sixteenth day, and 9·9 milligrammes *per centum* by the eighteenth day.

Urine output on the thirteenth day reached 4800 millilitres, and the intake began to fall behind. By the evening of the fourteenth day it was obvious that subcutaneous therapy could not keep pace with the tremendous diuresis, and an intravenous drip administration with three-millimetre polythene tubing was set up in the left basilic vein. Penicillin and streptomycin administration had been commenced on the previous day as a "cover" for the parenteral therapy. Attempts to give sufficient potassium to replace the great urinary losses at this stage represented a problem, since we hesitated to use potassium chloride intravenously. The intramuscular injection of potassium chloride was very painful, and potassium citrate given *per rectum* was retained for only short periods.

By the fifteenth day the patient was apathetic and drowsy, and when her serum potassium level was 3·7 milliequivalents per litre she was given by vein 120 millilitres of 0·15 molar potassium chloride solution, diluted to 500 millilitres (that is, 18 milliequivalents of potassium).

By the sixteenth day she was a little brighter, but combined some peripheral œdema with a dry parched tongue. More reliance was placed on the former sign, and fluid administration was slowed down accordingly. Her serum potassium level had risen to 4·2 milliequivalents per litre, but her bicarbonate reserve had also risen to 38·7 milliequivalents per litre. It was considered that the combination of a low serum potassium level with a rising bicarbonate reserve represented intracellular potassium depletion, and another 18 milliequivalents of potassium were given as before.

By the morning of the seventeenth day she was much more alert and began taking some fluids by mouth again without vomiting. Her urine output had begun to fall, and much of her œdema had disappeared; but by mid-day she had developed a most peculiar mental state of almost pure paranoia. Her serum potassium level had fallen to 3·3 milliequivalents per litre, and it was considered that her mental changes were hypokalæmic in origin. She was therefore given 84 milliequivalents of potassium intravenously in the twenty-four hours, in the same form as before.

Next morning (day 18) she was alert but still psychotic, and her psychosis increased as the day went on. Her serum potassium level was still 3·3 milliequivalents per litre, but the serum bicarbonate reserve was down to 24·8 milliequivalents per litre, so that it was thought that most of the intracellular potassium deficit had been corrected. In case her dementia represented an acute pellagra-like deficiency syndrome, she was given 50 milligrammes of nicotinic acid every two hours, as well as another 36 milliequivalents of potassium intravenously.

Throughout the nineteenth day her mental condition improved. Her serum potassium level was now down to 3·1 milliequivalents per litre, and as she was taking fluids well by mouth, four grammes of potassium citrate and seven grammes of potassium chloride in enteric-coated capsules (110 milliequivalents of potassium) were given orally during the day. The diuresis was subsiding even more, and by evening all intravenous therapy was suspended. During the afternoon the original episode was recalled when she passed *per vaginam* a piece of tissue resembling a uterine cast; this proved on microscopic examination to be composed of necrotic muscle tissue. She passed one more similar cast before leaving hospital.

During the night after the removal of the polythene tubing, she suddenly had a rigor and her temperature rose to 103·8° F. No localizing signs were found, and, in fear of a resistant septicæmia, the administration of penicillin and streptomycin was suspended, and that of chloramphenicol (500 milligrammes every six hours) was begun. Within twelve hours her temperature returned to normal and remained so. No organisms were cultured from the blood.

She looked weak and tired on the twentieth morning, but her condition improved steadily throughout the day. Her serum potassium level had finally been raised to 4·5 milliequivalents per litre. She ate and drank as was asked of her.

A dramatic improvement, which continued throughout her convalescence, was obvious the next day. Her blood urea level fell to 42 milligrammes *per centum* before she left hospital, and there were no other abnormal biochemical findings. Her urine output hovered between 1·5 and 2·5 litres per day, and the best concentration her kidneys could achieve was a specific gravity of 1014.

She left hospital on September 11, thirty-two days after the onset of her illness. On a subsequent visit examination revealed her pelvis to be normal, and she now complains only of some polyuria with pale urine.

Discussion.

General Course of the Illness.

In many ways this was a classical case of lower nephron nephrosis. Increasing suppression of urine was recognizable within twenty-four hours of the precipitating cause. There followed six days of almost complete anuria, three days of oliguria, and then an enormous diuresis which reached a maximum of 7700 millilitres on the sixteenth day. Thereafter the urine output decreased, but was still between 1·5 and 2·5 litres per day when the patient left hospital. The specific gravity of the urine from the time she began to pass it was 1008 to 1012, and she could concentrate only up to 1014 when she left hospital.

The serum biochemical findings followed generally accepted lines, with a few exceptions discussed below.

She had two hypertensive phases during her illness, one during the anuric period (blood pressure 160 millimetres of mercury, systolic, and 80 millimetres, diastolic), and a more prolonged one during the diuretic phase (blood pressure 175 millimetres of mercury, systolic, and 95 millimetres, diastolic). She became, and remained, normotensive afterwards.

Routes of Therapy and Fluid Balance.

While the initial treatment (dictated by the peculiar circumstances) was by the intravenous route, intravenous therapy was avoided whenever possible. Thus from the fourth to the eighth day fluid, glucose and electrolytes were given orally or via the Ryle's tube, from the ninth to the eleventh day via the Miller-Abbott tube, from the twelfth to the fourteenth day subcutaneously, and from the fifteenth to the nineteenth day intravenously, after which she took them orally again.

It was perhaps fortunate that she did not begin to vomit earlier than she did (ninth and tenth day); but with the intestinal tube once in position the possibility of vomiting no longer caused concern. The Miller-Abbott tube was probably the most satisfactory route of therapy employed. With it, vomiting was no longer an obstacle to giving precise amounts of fluid and electrolytes via the alimentary tract. Strong glucose was the only solution that could not be put directly into the small bowel. It is thought that it would have been of inestimable value in the full-blown diuretic phase, when so much fluid had instead to be given intravenously, and it was a matter for regret that the tube had been removed earlier. This method is suggested as being superior to Ryle's tube therapy in every way.

Fluid was balanced carefully over each twenty-four hours in the anuric phase, and over each twelve hours in the diuretic phase. An arbitrary allowance of one litre per day was made for obligatory water loss; but this figure should probably be more carefully assessed for each individual, since by the sixteenth day, when it was calculated that the patient was some litres short of fluid balance, she was in fact somewhat œdematous (with a normal serum protein content).

Electrolyte Behaviour.

Serum sodium values remained within normal limits with judicious use of sodium chloride and sodium acetate.

The serum chloride level remained within normal limits until the diuresis began to regress, when it became consistently elevated (107 to 130 milliequivalents of chloride per litre), and it was still elevated a week after all intravenous therapy had ceased. Since the artificial extracellular fluid being given had the same chloride concentration as natural extracellular fluid (approximately 100 milliequivalents per litre), the reason for the hyperchlorræmia is obscure.

The serum calcium fell steadily to a level of six milligrammes *per centum* by the end of the anuric phase, despite the giving of what were felt to be adequate amounts of calcium. The level rose throughout the diuretic phase even with some decrease in calcium dosage. The use of the resin "Zeo-Karb 225" probably helped lower the serum calcium level; but the latter did not reach its lowest figure till a week after the last dose of resin was given. Hence it would seem that anuric phosphate retention is more important in determining serum calcium levels than the administration of adequate calcium.

The serum potassium will be considered in some detail. The presence of a serum potassium level of 8·5 milliequivalents per litre on the second day of the illness calls for comment. The following causes were suggested: (i) The cellular breakdown consequent upon prolonged uterine anæmia and anoxia. (ii) The large amounts of stored blood and serum given. (iii) The possibility of a retroperitoneal hæmorrhage.

The extraordinary electrocardiogram obtained at the time, and the presence of a cardiac triple rhythm, bore out the biochemical findings, and this was the main factor that led to an attempted exsanguino-transfusion in the early stages, with more conservative treatment once the electrolytic pattern had been corrected.

The serum potassium level was kept to normal limits in the anuric phase by various means (*vide infra*), but far more difficulty was experienced in the diuretic phase in preventing serious hypokalæmia. We eventually gave potassium chloride intravenously in a strength of 36 milliequivalents per litre. Some of the methods used in the treatment and prevention of hyperkalæmia were as follows.

1. Exchange transfusion. As was noted earlier, this was abandoned after an exchange of 2·5 litres. Difficulty was encountered in keeping the outflow needle clear. While heparinization would probably have overcome this problem, we hesitated to use anticoagulants in the possible presence of a retroperitoneal hæmorrhage. The procedure did help a little in reducing the hyperkalæmia and correcting the anæmia.

2. Glucose and insulin administration. Carbohydrate anabolism aids intracellular potassium storage, and this process was fostered energetically in the early stages. Over the first week of treatment glucose intake averaged 370 grammes per day (equivalent to nearly 1500 Calories), soluble insulin being given regularly to promote glycogen storage. Not only did this succeed in controlling extracellular potassium levels so that they fell by 2·6 milliequivalents per litre in the first twenty-four hours and did not again exceed 6·5 milliequivalents per litre, but also endogenous protein metabolism was reduced to such an extent that the blood urea level rose only 30 milligrammes *per centum* from the sixth to eleventh days after reaching 366 milligrammes *per centum* by the sixth day.

3. Administration of cation exchange resins. "Natrinil" was used at first, but since it removes sodium as well as potassium it was replaced as soon as practicable with "Zeo-Karb 225", which is selective for potassium and calcium.

4. Intestinal dialysis. This is mentioned only to point out the potential dangers. Good results are claimed by some authorities, but on two minor attempts we failed (with no obvious mechanical defect) to aspirate any perfusate. In a case of anuria, in which fluid intake must be strictly limited, the pouring of seven litres of perfusion fluid per day through the alimentary tract must represent a distinct hazard, unless return of the whole volume can be guaranteed.

The serum bicarbonate reserve was a valuable adjunct to the potassium determinations. It showed an early acidosis which was corrected. In the diuretic phase, when the serum potassium reached low levels, a rising bicarbonate reserve suggested intracellular potassium depletion. This was borne out by the fact that the intravenous administration of large amounts of potassium resulted in a fall in the bicarbonate reserve for some days before any rise in serum potassium levels occurred. This interrelation between potassium and bicarbonate behaviour is clearly shown in the two graphs from the thirteenth to twentieth days.

Other Features.

Urinary infection must surely have been restricted to cystitis; the patient had no fever and no toxic symptoms. Purely local measures were used against it, and while these did not cure the infection, they probably did prevent ascending pyelonephritis. The desire to avoid early use of antibiotics has already been mentioned.

The ætiology of the hiccup was a puzzling feature. The patient began to hiccup on the second day, and continued to do so quite strenuously for ten days. At the time when the hiccups began her blood urea level was only 166 milligrammes *per centum*, and they continued even when the hyperkalæmia had been reduced. She had no shoulder pain or other signs of diaphragmatic irritation. The hiccups ceased spontaneously, on the day after removal of the Miller-Abbott tube, early in the diuretic phase.

Pericarditis was regarded as of grave omen when it appeared. It is not suggested that the cortisone given had any material bearing on the ultimate outcome of the pericarditis. The friction rub persisted till some days after the cortisone administration was stopped—indeed, till the peak of the diuresis had passed, suggesting that its disappearance was merely incidental to recovery from the major disease.

Summary.

1. A case of successfully treated lower nephron nephrosis is described, with some atypical features in the early stages.

2. The advantages and disadvantages of the various forms of therapy used are discussed in their application to this patient.

3. The rapid reversibility of extreme potassium intoxication and the prevention of further intoxication by medical measures is illustrated, and the efficacy of glucose, insulin and a cation exchange resin in this regard is shown.

4. The importance of accurate fluid and electrolyte therapy is stressed, and the use of an artificial extracellular fluid is described.

5. The dangers of infection as a cause of death in the anuric patient, even when the anuria does not prove fatal, are deduced from a small series of cases.

Acknowledgements.

We desire to express our thanks to the Clinical Research Unit of the Royal Prince Alfred Hospital, and to its director, Dr. C. R. B. Blackburn, for valuable advice in the treatment of the patient and in the compilation of this

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case report; to the staffs of the Department of Biochemistry and the Department of Pathology of the Fairfax Institute, and of the Hallstrom Institute of Cardiology, for many onerous investigations; to the medical and nursing staffs of the King George V Hospital; and to Professor B. T. Mayes, honorary obstetrician in charge of the patient, for permission to publish this article.

Appendix: Passage of Modified Miller-Abbott Tube.

The standard Miller-Abbott tube was modified in the following way. The original bag was removed, and a terminal bag, fashioned from portion of a rubber condom, was bound on after the "suction" half of the double-barrelled tube at the end had been plugged.

The tube was passed into the stomach and the bag inflated with "Neo-Hydriol" (radio-opaque oil). Under direct fluoroscopic screening the bag was readily manœuvred to the pylorus, and set pointing in the correct direction. One millilitre of carbachol was given intramuscularly. The increased peristalsis could be seen indenting the bag and carrying it rapidly through the pylorus and along the small bowel.

It is considered that this method is worthy of further trial.

Reviews.

Atlas of Tumor Pathology (Washington: Armed Forces Institute of Pathology). *Section IV—Fascicle 14:* "Tumors of the Thyroid Gland", by Shields Warren, M.D., and William A. Meissner, M.D.; 1953. 10¼" × 8" pp. 98, with 82 illustrations. Price: $1.75. *Section IV*—Fascicle 15: "Tumors of the Parathyroid Glands", by Benjamin Castleman, M.D.; 1952. 10¼" × 8", pp. 75, with 53 illustrations. Price: 65 cents. Section V—Fascicle 17: "Tumors of the Lower Respiratory Tract", by Averill A. Liebow, M.D.; 1953. 10¼" × 8", pp. 190, with 249 illustrations. Price: $1.25. Section VIII—Fascicles *31B and 32:* "Tumors of the Male Sex Organs", by Frank J. Dixon, M.D., and Robert A. Moore, M.D.; 1952. 10¼" × 8", pp. 180, with 135 illustrations. Price: $1.50. Section X—Fascicles 35 and 37: "Tumors of the Central Nervous System", by James W. Kernohan, M.D., and George P. Sayre, M.D.; 1952. 10¼" × 8", pp. 130, with 126 illustrations. Price: 90 cents.

At the end of May, and in September, 1952, there were reviewed in this journal six fascicles of an "Atlas of Tumor Pathology". This atlas was published by the Armed Forces Institute of Pathology (United States of America) under the auspices of the Subcommittee on Oncology of the Committee on Pathology of the National Research Council in the United States. The six fascicles reviewed on those two occasions dealt with tumours respectively of the mediastinum, the adrenal, the breast, the peripheral nervous system, teratomata, and tumours of the carotid body and related structures. Five further fascicles of this excellent atlas have been received. In September, 1952, we pointed out that the fascicles of this atlas will be issued in loose-leaf form as they become ready for distribution—no particular order of issue will be observed.

Fascicle 14, Section IV, deals with tumours of the thyroid gland. It is the work of Professor Shields Warren and Professor William A. Meissner, Professor of Pathology and Assistant Professor of Pathology, respectively, of the Harvard Medical School. In the introduction to this fascicle, tumour-like lesions are considered. The subsequent sections deal with benign tumours and malignant tumours. Under the heading of benign tumours come adenoma and teratoma. Under the heading of malignant tumours are placed differentiated carcinoma, undifferentiated carcinoma and miscellaneous malignant tumours. It is stated in the introduction that the classification adopted has been evolved from the study of the pathology and the clinical pathological correlation in more than 600 carcinomata and several thousand benign tumours. It is held that this classification is designed to be useful not only to the pathologist, but to the surgeon and clinician as well, since, for practical purposes, thyroid tumours are predominantly a problem of surgical, rather than of post-mortem, pathology. Every section and subsection of this fascicle has a special discussion with its own set of references, and in each instance the photomicrographs are of that superb quality which characterized the fascicles already produced. The best quality of art paper has been used and the workmanship of the printing is faultless.

Fascicle 15, Section IV, deals with tumours of the parathyroid gland. It is the work of Benjamin Castleman, acting chief of the Department of Pathology and Bacteriology of the Massachusetts General Hospital and Assistant Professor of Pathology at the Harvard Medical School. The sections of the fascicle include an introduction followed by parts devoted to primary hyperparathyroidism, secondary hyperparathyroidism, and non-functional enlargement. The word tumour in this fascicle is used literally to mean a swelling or enlargement because some of the conditions discussed are not true neoplasms but lesions which must be differentiated from the true neoplasm. The classification has been drawn up on a functional basis. The observations on primary hyperparathyroidism are based on material removed from over 100 patients suffering from the condition at the Massachusetts General Hospital. In the discussion of secondary hyperparathyroidism, it is pointed out that the recognition of the lesion is important so that it may not be mistaken for an adenoma. The most common cause of the condition is chronic renal insufficiency, and the longer the renal impairment lasts, the greater is the secondary hyperparathyroidism and the larger are the parathyroid glands. Non-functional enlargement may be due to oxyphile adenoma, cysts or carcinoma.

Fascicle 17, Section V, is by Professor A. A. Liebow, of the Yale University School of Medicine, and deals with tumours of the lower respiratory tract. After an introduction, the author discusses primary tumours of the bronchi and lungs and then neoplastic lesions of the lung other than primary tumours; then follow sections on tumours of the pleura and tumours of the diaphragm. Primary tumours of the bronchi and lungs are considered under the headings of epithelial tumours, mesodermal tumours of bronchi and lungs and tumours of developmental origin. The references to cytology of sputum in neoplastic diseases of the lung are most interesting. The coloured illustrations in this fascicle are of more than usual interest.

Fascicle 31b and 32, Section VIII, deals with tumours of the male sex organs and is written by Professor F. J. Dixon, of the University of Pittsburgh School of Medicine, Pennsylvania, and Professor R. A. Moore, of the Washington University School of Medicine, St. Louis. The sections of this fascicle deal in turn with tumours of the prostate, tumours of the testis, tumours of the testicular appendages, tumours of the urethra, tumours of Cowper's gland, tumours of the seminal vesicles, tumours of the penis and tumours of the scrotum. It is obviously impossible in the space available to do anything like justice to these several sections. It must suffice to say that they are handled in the way in which other parts of the atlas have been dealt with. The section on adenocarcinoma of the prostate is particularly interesting, and here the author deals not only with morbid anatomy, but with the ætiology, course and treatment, and with biochemical considerations.

Fascicle 35 and 37, Section X, is devoted to tumours of the central nervous system and is written by Professor J. W. Kernohan of the Graduate School, University of Minnesota, and by Dr. G. P. Sayre of the same school. In this fascicle there is an introduction, and this is followed by a section on tumours of nervous tissue, tumours of mesenchymal tissue, a section on meningiomata, a section on tumours of developmental defects, and one of tumours of the pineal body. Tumours of nervous tissue include gliomata and neurilemomata.

In our previous reference to this atlas, it was described as being indispensable to morbid anatomists and these fasciculi only serve to confirm that impression. The expense involved in the production of this work must be colossal, and it is to be hoped that the sponsors will be rewarded by the genuine appreciation of those for whom it has been prepared.

Roentgen Diagnosis of the Heart and Great Vessels. By Erich Zdansky, M.D., translated by Linn J. Boyd, M.D., F.A.C.P.; 1953. New York: Grune and Stratton. 10" × 7", pp. 510, with 334 illustrations. Price: $15.50.

The book records the great advances made in the study of the diseases of the heart and great vessels over the past few years. The methods of examination are described minutely and the author lays stress on the great importance of fluoroscopy in this field. Reliance is also placed on orthodiagraphy and teleroentgenography. The kymographic method is still considered of value in mapping out the exact cardiac contour. A large part of the work is devoted to descriptions of the normal heart. There follows a detailed description of the various pathological conditions which may be met. The illustrations and line drawings are illuminating

and interesting. The author appears to place more reliance on fluoroscopic findings than on the complicated angiocardiographic method.

The work is one for the specialist attached to a large clinic rather than for the ordinary "roast and boiled" radiologist.

Aspects of the Psychology of the Tuberculous (A Psychosomatic Medicine Monograph). By Gordon F. Derner, *Ph.D.; 1953. New York: Paul B. Hoeber, Incorporated.* 9¼" × 6¼", pp. 120. Price: $3.50.

DESCRIBED as a psychosomatic medicine monograph, this study has as its purpose, in the author's words, the attempt to discover some of the psychological factors arising from tuberculosis, including the disease and its concomitants. The concomitants mentioned are social ostracism, possible fatality, lengthy treatment, arrestment rather than cure, possible surgery, institutionalization, financial loss and constant vigilance against relapse.

The study was made on 32 patients in the age group eighteen to forty, nearly two-thirds of whom were females. There were nine nurses and three physicians. The sampling, therefore, seems rather small and unduly specialized to warrant an over-all authoritative verdict. The author found, among other things, that while most patients were optimistic about their prognosis, they did not show the traditional *spes phthisica*. Rather was there a basic anxiety than a euphoria. No unique tuberculous personality was found, though there was a wide variety of disturbed behaviour. The conclusion drawn, in effect, is that the patient with tuberculosis often has fears and anxieties meriting consideration and attention by psychotherapy. This is the day of the psychologist, but it is not to be denied that the true physician who loves the practice of his craft accepts the responsibility not only of easing his patients' fears and troubles, but also, in some cases, of preventing them.

The author gives an extensive bibliography of the psychology of the tuberculous and has devoted himself seriously to his study. Before accepting the findings as specifically concerning the tuberculous one feels the need of comparative studies into the psychology of those suffering from other long-standing conditions of doubtful prognosis for a proportion of those affected.

Modern Trends in Urology. Edited by E. W. Riches, M.C., M.S., F.R.C.S., with a foreword by The Lord Webb-Johnson, *K.C.V.O., C.B.E., D.S.O., T.D., M.B., LL.D.*, F.R.C.S.; 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 10" × 7", pp. 490, with 215 illustrations. Price: £5 2s. 6d.

THE editor of this book has forestalled the criticism that surgical text-books are out of date before they are published, by pointing out that the contributors, printers and publishers combined to produce the book with unusual expedition. This is borne out by an examination of the text, for little of importance in the recent literature has been omitted.

The subject matter and illustrations are derived mainly from recently published articles, and the modern approach to most urological problems is covered adequately with some bias towards radicalism—a modern trend in urology as in most other branches of surgery. Some procedures which have been developed recently are described in detail, those for surgical approaches to the kidney and partial nephrectomy being outstanding. Notable omissions from the technical descriptions are the operations for pelvic exenteration (possibly considered to be outside the scope of urology), and the perineal operation for prostatic cancer, although Young's operation and modifications provide the only known cure for this disease.

Diagnostic radiology is very properly confined to concise but complete details of aortography and perirenal insufflation, both of which are admirably illustrated. The chapters on partial nephrectomy and uræmia present the current problems as well as the practical side, while purely experimental urology is represented by a discussion on renal transplantation. Mention should also be made of the brief but thorough presentation on the ætiology and prevention of calculi.

This book is attractively bound and very clearly printed on good paper, and the illustrations are well produced and pertinent. The only criticism of its preparation might be that perhaps more space than necessary has been devoted to well-established practice and that some hackneyed illustrations seem redundant in such a work.

To those who have been unable to keep pace with the spate of urological literature, and newcomers to the specialty who require a foundation on which to build, "Modern Trends in Urology" will be most useful.

Advances in Pediatrics. Edited by S. Z. Levine, with associate editors *Allan M. Butler, Margaret Dann, L. Emmett Holt, junior, and A. Ashley Weech*; Volume V; 1952. Chicago: The Year Book Publishers, Incorporated. 9" × 6", pp. 274, with 21 plates and many text figures. Price: $7.00.

IN recent years the annual appearance of a new volume in this series has been an event of considerable interest to pædiatricians. This sixth volume of the series maintains the high standard of the earlier volumes. It contains seven comprehensive monographs by recognized authorities in their respective fields and four of these pertain to the neonatal period. Zuelzer and Rutzky's review of megaloblastic anæmia in infancy, and Levine, Vogel and Rosenfield's monograph on hæmolytic disease of the newborn are excellent. The latter is a concise and clear account of what is now an extensive and complex problem. The subject of megaloblastic anæmia has become a fascinating one and the condition is much commoner than anticipated after Zuelzer's original description in 1946; the present monograph is an excellent review of the large volume of work which has been published since then. Edith Potter writes authoritatively upon the subject of pulmonary pathology in the newborn, and includes a brief account of her original work upon the intrauterine development of the lungs and a review of the present state of knowledge of hyaline membrane. The increasing interest of both obstetricians and pædiatricians in the ætiology and prevention of congenital abnormalities is recognized in the survey of this field by Ingalls in his section on preventive pre-natal pædiatrics. The pædiatric surgeon makes his contribution on the subject of intestinal obstruction in the neonatal period. This subject is covered adequately by Everett Koop, but perhaps in a monograph of this type more consideration could have been given to the problem of incomplete obstructions. The remaining two monographs cover fields of less general interest—lymphosarcoma in childhood by Dargeon and the lipoidoses by van Creveld—and these two are careful and full contributions.

A History of Psychoanalysis in America. By C. P. Oberndorf, M.D.; 1953. New York: Grune and Stratton. 8½" × 5½", pp. 288, with two illustrations. Price: $5.00.

THIS book, by an author who is a world figure in psychoanalysis (Oberndorf), is enlivened by the fact that he makes interesting revelations about Freud by whom he was psychoanalysed, and that he is exceptionally candid in assessing the indications for and against psychoanalytical treatment.

Naturally, he correlates psychoanalytical developments in America with those in Europe and particularly links these with the time when Freud lectured there in 1909. He stresses the rapidity of their spread in the United States, where nowadays training at a psychoanalytical institute is apparently obligatory for the attainment of psychiatric appointments at most of the top-ranking hospitals, clinics and universities.

British Medical Science and Practice: An Anthology. Edited by G. F. Petrie, M.D.; 1953. London: Longmans, Green and Company. Melbourne: Longmans, Green and Company, Limited. 8½" × 6", pp. 188, with 22 illustrations. Price: 25s.

WITH the object of helping doctors and students to follow modern trends in the theory and practice of medicine, Dr. G. F. Petrie has arranged and edited an anthology of significant extracts from the published writings of numerous English doctors (with an occasional intruder from the other side of the border), who have made outstanding contributions to medical science in the last three or four centuries.

The selected passages, which are undoubtedly interesting and always instructive, form the main substance of the book, and they cover nearly every branch of medical specialism. It must suffice to comment on two of the extracted articles: A careful study of what Sir Norwood East had to say in 1945 about the psychopathic personality and crime should provide the practitioner with most of the terminology required for an intelligent recording of his cases of mental illness. And the ingenious application by an Oxford professor of the original instrument, posture, and technique of James Marion Sims, in a desperate attempt to

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deal with an intractable case of vesico-vaginal fistula, is a shining example of the success to be gained from an historical approach to operative gynæcology.

The opening sections of the book contain a few short biographical sketches of people whose names are famous in medical history, and a number of quotations in aphoristic form from the writings of some of the elect, from William Harvey to a scientist of the present day. At the end of the book is a list of authors quoted in the text, with short notes describing their status in the profession. All references are systematically documented, and there are several excellent portraits of contributors to the text.

Physical Examination of the Surgical Patient. By J. Englebert, M.D., F.A.C.S., and Thomas W. Botsford, M.D., F.A.C.S.; 1953. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 9¼" × 6¼", pp. 340, with 188 illustrations. Price: £3 11s. 3d.

AT a time when the medical profession, along with the rest of mankind, places such trust in mechanical aids and devices, it is pleasing to see a work like this published, for it serves to prove that a doctor can still diagnose accurately by the use of his own senses, provided he is well trained and has the interests of his patients wholly at heart. The authors emphasize the need for a painstaking physical examination, and the reader realizes just how much the time factor interferes in the practice of medicine and the truth of the old adage that errors in diagnosis are often due to not looking, rather than not knowing.

The work is divided into two main parts. In the first, which deals with the "elective" examination, a most comprehensive and clear-cut procedure for each bodily system is set down. While the title mentions only the "surgical patient", the detailed examination is suitable for doctors in any specialty—physicians frequently diagnose a condition for surgeons and *vice versa*. The second part is under the heading of the "emergency" examination and deals with general principles that apply alike at the roadside, in the field of warfare or at the factory.

Finally, a comprehensive appendix reminds one of an airman's cockpit drill, so that the doctor can quickly discover whether he has covered every section of the body adequately in his survey of the patient.

Apart from being a well-written book, this volume is enhanced by the many illustrations which in themselves are a tribute to modern printing.

Carcinoma of the Female Genitalia. By Hans Ludwig Kottmeier, M.D.; 1953. Baltimore: Published for Vanderbilt University by The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 8½" × 5", pp. 224, with 59 illustrations. Price: £2 5s. 9d.

DR. KOTTMEIER, distinguished chief, Gynæcological Section, Radiumhemmet, Stockholm, and successor to Dr. Heyman, was invited to the United States by the Vanderbilt University Medical School to give the Abraham Flexner Lectures for 1951. This book of five chapters represents these in more extended form. In Sweden the use of radium for uterine cancer has been studied for forty years, and a campaign backed by an almost completely socialized medical service provides authoritative statistics with 100% follow-up.

In dealing with the classification of cancer of the female pelvis, special reference is made to the controversial cancer *in situ*, and to the statistical difficulties arising from the recently introduced Stage O grouping. Kottmeier inclines to a conservative attitude to some carcinomata *in situ*, even allowing pregnancy; he thinks the smear detection technique has drawbacks; and that harm may result from routine prophylactic inspection clinics. Enthusiasts with the cautery may note that there is no evidence that lacerations or cervicitis predispose to cancer.

The solid core of the book describes the Stockholm technique of radiotherapy for cervix and body. Experience has proved the value of fractional curettage as the routine method, as the level of the growth determines prognosis and treatment. The corpus to cervix ratio, usually quoted as ten to one, is found to be nearer three to one. The final lecture attempts to cover the wide field of vulva, vagina and ovary, and to compare surgery and radiation in treatment.

That which is technical and statistical cannot be avoided, but the book is most readable, loaded with points of interest, and is a compact and authoritative review from a world centre on the place of irradiation in pelvic malignant disease.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Applied Cytology", by G. R. Osborn, M.B., B.S. (Melbourne); 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 10" × 7", pp. 180, with 131 illustrations. Price: 49s. 6d.

Based on 5000 cytological examinations and concerned mainly with the reasons for mistakes.

"Practical Prescribing: An Introductory Guide for Medical Students", by Alastair G. MacGregor, M.D., B.Sc., M.R.C.P. (Lond.), F.R.F.P.S., and Trevor W. G. Kinnear, M.B.E., M.B., Ch.B., M.R.C.P. (Ed.), M.R.C.P. (Lond.), with a foreword by J. H. Gaddum, F.R.S.; 1953. Edinburgh and London: E. and S. Livingstone, Limited. 7¼" × 4¾", pp. 88, with one illustration. Price: 6s., postage abroad 6d.

Based on notes issued to medical students in the University of Edinburgh and dealing with the ways in which drugs are prescribed and administered, the National Health Service (of Great Britain) and the law.

"Mammalian Germ Cells", a Ciba Foundation Symposium; Editor for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., assisted by Margaret P. Cameron, M.A., A.B.L.S., and Jessie S. Freeman, M.B., B.S., D.P.H.; 1953. London: J. and A. Churchill, Limited. 8" × 5½", pp. 318, with 54 illustrations. Price: 30s.

This is one of the productions of the Ciba Foundation which exists "for the promotion of international cooperation in medical and chemical research".

"Primary Love and Psycho-Analytic Technique", by Michael Balint, M.D., Ph.D., M.Sc., L.R.C.P., L.R.C.S.; 1952. London: The Hogarth Press and the Institute of Psycho-Analysis. 8¾" × 5½", pp. 288. Price: 30s.

This is Number 44 of the International Psycho-Analytical Library, edited by Ernest Jones, M.D.

"Official History of the Canadian Medical Services, 1939-1945"; Volume II: Clinical Subjects, edited by W. R. Feasby, B.A., M.D.; 1953. Published by authority of the Minister of National Defence. Ottawa: Edmond Cloutier, C.M.G., O.A., D.S.P., Queen's Printer and Controller of Stationery. 10" × 6½", pp. 556, with 16 illustrations, five in colour. Price: $5.00.

This, the second volume, has been published before Volume I, which will appear in a few months' time.

"Pædiatrics for the Practitioner", edited by Wilfrid Gaisford, M.D., M.Sc., F.R.C.P., and Reginald Lightwood, M.D., F.R.C.P., D.P.H.; 1953. London: Butterworth and Company (Publishers), Limited Sydney: Butterworth and Company (Australia), Limited. Volume I. 10" × 7", pp. 612, with 102 illustrations. Price: 90s.

The volume is the work of 22 contributors and is divided into ten parts.

"Medical Electronics", by G. E. Donovan, M.D., M.Sc., D.P.H.; 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 9" × 6", pp. 224, with 37 illustrations, one in colour. Price: 43s. 6d.

An attempt is made to set out the underlying principles of eletronics and to discuss the wide application of its uses in medicine.

"Toxæmias of Pregnancy", by John Sophian, M.D. (London), F.R.C.S. (England), M.R.C.P. (London), M.R.C.O.G., with a foreword by F. J. Browne; 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 8½" × 5½", pp. 244, with 37 illustrations. Price: 35s. 6d.

The author holds that the Trueta mechanism or "Oxford shunt" is the cause of the toxæmias of pregnancy, and presents his views in eleven chapters.

"Clinical Genetics", edited by Arnold Sorsby; 1953. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 10" × 7", pp. 614, with 311 illustrations. Price: 123s. 6d.

The first part of the book is intended to supplement the elements of genetics with which most readers are presumed to be acquainted; the second part is more strictly clinical.

The Medical Journal of Australia

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

ACUTE RHEUMATISM.

In a recent review in these columns of the Tenth Rheumatism Report of the American Rheumatism Association, the subject of acute rheumatism, or rheumatic fever as it is sometimes called, was mentioned. Further reference to it was forecast. On that occasion the wide incidence of rheumatic disease was referred to, and it was stated that more than 300,000 persons are made unemployable every year in the United States of America by rheumatic diseases, and that 47,000 are rheumatic invalids. Under the heading of rheumatic fever, we are told in the report that approximately 2% of school-children in the United States have rheumatic heart disease, and that 80% to 90% of all heart disease in persons below the age of twenty is due to rheumatic fever. It is further stated that rheumatic fever annually causes more than ten times as many deaths as poliomyelitis. We are informed that there was much less rheumatic fever among servicemen during World War II than during World War I. Seven hundred patients with rheumatic fever and approximately the same number with rheumatic heart disease were admitted to hospital in 17 hospitals of the Mediterranean theatre of operations, where these conditions accounted for 3·9% of the 30,193 patients who were returned to the United States for medical disabilities. From 1926 to 1944 there was a striking decline in deaths from heart disease in persons below the age of nineteen years, and this was interpreted as a rough index of rheumatic heart disease. No such decrease occurred in persons between the ages of twenty and thirty-nine years. In our reference to the rheumatism report, it was stated that no figures for Australia were available, but we note that Bryan Dowd, of the Institute of Child Health, Sydney, in a recent post-graduate lecture, stated that in 1949 throughout the Commonwealth of Australia, excluding accidents, rheumatic fever was the commonest cause of death of children in the ten to fourteen years age group. He added that in the Royal Alexandra Hospital for Children about one-fifth of the medical beds are occupied the year round by children suffering from rheumatic heart disease. In regard to the clinical manifestations of rheumatic fever, the rheumatism report tells us that of 689 patients with rheumatic fever studied by Jacobsson in Stockholm, the initial manifestation of the disease in 521 or 75% was arthritis, in 127 cases or 18% the initial manifestation was chorea, and carditis alone presented in 41 cases or 6%. Of 266 military patients with rheumatic fever, all had arthritis in some form, and all had fever; 73% had effusions at the knee joint, 63% had chilly sensations, 23% had epistaxis, 45% had cardiac abnormalities, 6% had skin lesions and 2% had subcutaneous nodules. Of 1160 patients with rheumatic valvular involvement, joint pain occurred in 51·4%, tonsillitis in 50·6% and epistaxis in 28·7%; and 44% of the patients developed cardiac failure.

It is important for practitioners to realize the diagnostic criteria of acute rheumatism. The various manifestations of the disease are known, but it should be realized that it is not necessary for all these to be in evidence before a diagnosis of acute rheumatism can be made. It is difficult to draw up any statement which will include all patients with rheumatic fever and exclude all patients suffering from other conditions. A statement on diagnostic criteria of acute rheumatism emanating from the International Committee on Acute Rheumatism has been made available by Professor Lorimer Dods, of the Institute of Child Health, Sydney. Here it is stated that since the conclusions of any experiment are limited by the protocol of that experiment, it seems reasonable to agree on certain criteria in the diagnosis of acute rheumatism, with the realization that this will impose limitations on the conclusions to be drawn from that experiment. The criteria put forward have been selected on the basis of three considerations. The first is that persons satisfying the criteria should have sufficient evidence of rheumatic fever, and that there should be a minimum of reasonable doubt amongst competent clinicians regarding diagnosis. The second is that observations on which diagnosis depends should be reproducible by different observers. The third is that the criteria should not be so strict as to disqualify from a diagnosis of rheumatism an undue number of patients with bona fide rheumatic fever. (This, it is stated, would be true if arthritis was dropped as a major manifestation.) The manifestations of acute rheumatism are divided into major and minor groups. The major group includes carditis, polyarthritis, chorea, subcutaneous nodules and *erythema marginatum* or *annulare*. Carditis may be evidenced by any one of the following: (*a*) The development of a significant organic systolic murmur or an aortic diastolic murmur under reliable observation. (*b*) Change in heart size as shown on a standard X-ray film (more than 15%). Any standard method of measurement should be acceptable. (*c*) The presence of pericarditis revealed by a definite friction rub or pericardial effusion. (*d*) Congestive failure in a child or young adult under twenty-five years of age and in the absence of other causes. The manifestations of congestive failure need not

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be set out. Polyarthritis is described as being evidenced by pain and limitation of active motion or by tenderness in two or more joints. Choreiform movements may be of moderate severity. Minor manifestations include fever, a raised erythrocyte sedimentation rate, evidence of preceding streptococcal infection, an increased *P-R* interval in the electrocardiogram, and a history of rheumatic fever. By fever is meant any temperature above 99·3° F. by the mouth or 100·3° F. by the rectum at least twice in a period of twenty-four hours, or above 100·3° F. by the mouth or 101·3° F. by the rectum at any time. The elevated sedimentation rate is described as 15 millimetres per hour or over (Wintrobe, corrected by the Whitby and Hines chart to a hæmatocrit of 45%). Evidence of a preceding streptococcal infection is provided by culture, in which the hæmolytic streptococcus predominates, or by antistreptolysin O titre of 200 units or greater, or by a history of a definite sore throat with fever preceding the onset of the attack by an interval of one week to one month. The *P-R* interval is regarded as significant when it is increased 0·04 second beyond the values given in the Ashman-Hull tables, in the age group up to sixteen, and beyond the values of 0·22 or more in the age group sixteen years and over. A reliable history of rheumatic fever is stated to be one involving the same criteria as have been described, or evidence of rheumatic heart disease, namely, an apical organic systolic murmur, or a mitral diastolic or an aortic diastolic murmur. In order for a diagnosis of acute rheumatism to be made, it is held that at least one major and two minor manifestations or two major manifestations should be present.

Although correct diagnosis is essential so that every sufferer may be brought promptly under adequate treatment, everyone will agree that prevention is much more important. The editor of the *Rheumatism Review* remarks that, since there are no effective measures for preventing cardiac sequelæ once rheumatic fever develops, the need for the prevention of initial or recurrent attacks of rheumatism becomes imperative. He points out that methods of prevention are dependent upon the views held in regard to the ætiology. Clearly prophylactic measures must be directed, he states, towards (*a*) the prevention of group A hæmolytic streptococcal infections, (*b*) the alteration of the susceptibility of the individual, whether that susceptibility is hereditary or acquired, and (*c*) change in the environmental factors. He adds that the major stress in prevention has been placed perforce on control of hæmolytic streptococcal infections. The prevention of acute rheumatism by the use of the sulphonamides has been discussed in this journal. Over ten years ago, in the issue of May 8, 1943, we recorded in a leading article observations by Caroline B. Thomas which were described as comprising "one of the most important preventive medicine investigations of recent years". Observations were made over a period of four years on 55 patients with a recent history of rheumatic fever who were given sulphanilamide continuously during 79 "person seasons". Sixty-seven patients in a control group were given no sulphanilamide. While taking sulphanilamide none of the 55 had a major attack of rheumatic fever or an acute infection due to the β hæmolytic streptococcus. Among the control group fifteen major attacks of rheumatic fever occurred and five other persons in the group suffered from other acute illnesses which might have been rheumatic in nature. What is described in the *Rheumatism Review* as the first large-scale controlled study on the prevention of first attacks of rheumatic fever was made by F. W. Denny *et alii* in 1950. It was reported in *The Journal of the American Medical Association* in May of that year and referred to in a leading article in this journal on October 27, 1951. A total of 798 patients suffering from streptococcal pharyngitis were treated either with 300,000 units of procaine penicillin given twice three days apart by intramuscular injection, or by 300,000 units of the same product given initially and repeated in forty-eight hours, followed by 600,000 units ninety-six hours after the initial dose. Of this group only two patients developed rheumatic fever. Of 804 who did not receive penicillin, rheumatic fever developed in 17. It must be remembered, of course, that both sulphonamides and penicillin are potent medicaments, and must be used with discretion and under adequate supervision. It is to be noted that the patients treated prophylactically by Denny were already suffering from hæmolytic streptococcal infections, and that fact alone would be sufficient justification for the exhibition of penicillin.

There are other aspects of the acute rheumatism problem which might be discussed, but it is not desirable to do this at present. What is needed is a reawakening of interest in this disease. As stated in our previous reference to the rheumatism report, acute rheumatism seems to be accepted as part of our everyday equipment, as something we have to put up with; it seems that when it does come we shall do what seems best at the time. Our knowledge of the susceptibility of individuals to the condition and of the influence of climate and environment upon it is woefully inadequate. Research into these matters should not be allowed to languish. Certain disease conditions tend to become fashionable avenues for clinical research, and any amount of money and popular acclaim seems to be forthcoming for them. There is no doubt that if we took the subject of rheumatism more seriously, its ravages might be less.

Current Comment.

CALORICALLY UNRESTRICTED DIETS FOR OBESITY.

FOR the reduction of weight in obese persons it is generally considered that there must be a limitation of caloric intake to a level below that of caloric expenditure. This is usually effected by conscious reduction of the total food intake. A. W. Pennington has presented evidence[1] that the limitation "can also be accomplished by physiological forces which, being brought to bear upon the appetite, regulate it so that weight is lost without the necessity for enforcing caloric restriction". It has been suggested that a factor which, by inducing excessive fat storage, disturbs the balance between calorie intake and output is a metabolic block in the oxidative pathway of pyruvic acid. Restriction of carbohydrate, it is believed, by removing much of the source of pyruvic acid, alleviates the inhibiting influence of this substance on the oxidation of fat, with the result that the energy needs

[1] *J. Clin. Nutrition*, July-August, 1953.

of the tissues, being more fully supplied from the body's own reserve stores, dictate a correspondingly smaller intake of food. It is generally believed that, with the use of low calorie diets, the reserve stores of fat are drawn on to an amount sufficient to meet the metabolic needs of the body. Evidence is accumulating to show that the amount of any foodstuff metabolized is related to the amount of that foodstuff presented to the tissues in the blood. This has been shown to be the case for glucose, fatty acids and ketones. On low calorie diets the obese show a decline in metabolism and this might be taken to indicate that the reserve stores of body fat are not being mobilized rapidly enough to meet the metabolic needs of the body. Measures which will cause an increased mobilization and utilization of fat would seem to be desirable.

A diet consisting essentially of protein and fat is ketogenic. Ketogenesis is the normal mechanism by which the organism is able to metabolize fats in much larger quantities than usual. Ketonæmia, further, is followed by increased mobilization of fatty acids from the fat stores. The blood concentration of fatty acids and of ketones is increased, causing the tissues to oxidize them in larger amounts. The calorie requirements vary from day to day, depending on activity and other factors, and animal experiments have shown that the intake of food follows closely body requirements for energy. If more reserve fat is being metabolized there will be an automatic reduction in food intake and the actual caloric intake will vary according to the needs of the individual from day to day. This will not be very exact in obese people, for other factors are concerned in the amount of food eaten. The caloric intake of obese people, in order to maintain constant weight, has been shown to be high, up to 4500 calories per day. Weight will be lost then on a diet which is high in caloric value by ordinary standards but lower than the weight maintenance requirement. In the practical use of this method of weight reduction a minimum of eight ounces of meat is recommended by Pennington for each of the three meals of the day; fat as well as lean is to be eaten, one part of fat to three parts of lean being suggested as the proper proportion. Carbohydrate is allowed in an amount calculated not to interfere with ketogenesis. In the author's series 60 grammes of carbohydrate have been allowed in most cases. It is helpful to provide a list of foods containing an average of 20 grammes of carbohydrate in an ordinary serving. Liberal amounts of water are allowed, but salt is restricted. A half-hour walk, or the equivalent exercise, before breakfast is recommended to increase the post-absorptive utilization of fat from the stores after the night's fast.

Briefly the regimen suggested is as follows. One-half pound or more of fresh meat with the fat is eaten at each of the three meals of the day. You can eat as much as you want of this. Do not use extra salt and do not eat salted meats and meat products. Salt-free flavourings may be used with the meat. The rest of the diet is strictly limited to an ordinary portion of any of the following: white potatoes, sweet potatoes, boiled rice, grapefruit, melon, banana, pear, raspberries; black coffee, unsweetened, may be taken and plenty of water. The diet contains no bread, flour, salt, sugar or alcohol.

THE CLINICAL USE OF CORTISONE: A SYMPOSIUM.

AN interesting symposium on certain problems arising from the clinical use of cortisone has appeared in *The Proceedings of the Staff Meetings of the Mayo Clinic* for November 18, 1953. This symposium consists of five papers. While these five papers cannot be described or discussed at any great length, it is thought that the observations contained in them should be made available to Australian practitioners.

W. T. Sauer, W. H. Dearing and E. E. Wollaeger describe serious, untoward gastro-intestinal manifestations possibly related to the administration of cortisone and corticotropin. They give the clinical history of ten patients, some of whom suffered, and some of whom did not suffer, from preexisting gastro-intestinal disease. Severe gastro-intestinal complications occurred in all of the cases during or after the administration of the hormone. One patient, who was suffering from chronic ulcerative colitis, died after perforation of the caecum and the development of peritonitis. Of four patients who had regional enteritis, two suffered from perforation of the bowel and peritonitis; an entero-cutaneous fistula was present in one of these cases as a result of the perforation. Perforation of an intraabdominal abscess occurred in a third patient who suffered from this disease. The fourth patient suffered from regional enteritis and had also had ulcerative œsophagitis, which either developed during, or was aggravated by, the administration of corticotropin. Complications of peptic ulcer occurred in two patients who had extensive hypercortisonism. One of these had massive hæmorrhage and ultimately died as the result of adrenal insufficiency after surgical removal of the ulcer. The second patient had reactivation of an ulcer and massive hæmorrhage; subsequently resection was required. A third patient who had hypercortisonism manifested a gastric ulcer which was intractable to medical treatment. Ulcerative lesions of the rectum occurred in three patients; two of them had hypercortisonism, and one of these two also had a large intractable gastric ulcer. The third patient in this group had proctoscopic findings compatible with chronic ulcerative colitis, which developed while he was receiving cortisone for treatment of rheumatoid arthritis. The authors admit that it is possible that the occurrence of gastro-intestinal complications in patients receiving cortisone or corticotropin is entirely fortuitous, but the evidence from their study and from reports in the literature suggest to them that administration of the hormone may be a causative factor. That it is not the only factor is clear from the large number of patients who receive these medicaments and do not experience any such complications.

H. P. Rome writes on certain psychodynamic aspects of the role of cortisone and allied substances in the production of psychological responses. He bases his remarks on several articles published on previous occasions by him and J. F. Braceland. One of these articles was the subject of comment in these columns on May 31, 1952, together with observations of the same kind made by Clark, Bauer and Cobb of Harvard. In the short discussion on this subject Rome has a good deal to say about the ego and its relationship. Psychiatrists have peculiar ways of expressing their views, and Rome remarks that ego relationships "have to be viewed as the dynamic expression of integrated physiologic and psychologic factors". He goes on to state that: "In this light, changes which occur can result only from the coordinated interaction of all the necessary and sufficient conditions conducive to change." This is a very enlightening statement. The practical point is that if untoward mental symptoms develop during cortisone therapy, it is advisable to reduce the dosage for a period of several days, to continue close observation, and to withdraw the treatment if the mental condition continues to deteriorate.

Charles F. Slocumb writes on rheumatic complaints during chronic hypercortisonism and syndromes during withdrawal of cortisone in rheumatic patients. He says that women past the menopause who are kept in a state of chronic cortisonism usually exhibit evidence of chronic hypercortisonism, whereas this syndrome is usually absent or incomplete in men. The length of time of hormonal administration necessary to produce chronic hypercortisonism depends on the dose of hormone and the sex of the patient. It is pointed out that abrupt withdrawal of cortisone produces profound reactions. The gradual reduction in the size of doses of cortisone, with the protection of extra hours of rest and avoidance of fatigue, results in either of two reactions. First of all, there may be a release of the feeling of "restless drive" in many patients; they think better and are more normally concerned with their duties and responsibilities; secondly, there may be a transitory panmesenchymal reaction which

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may simulate a rheumatic flare, *lupus erythematosus*, or *periarteritis nodosa*. When these reactions are mild, they are characterized by fatigability, aching of muscles and joints, emotional instability and sometimes minimal increase in synovitis. If the reaction is severe, the patient will be febrile and will exhibit more pronounced symptoms.

W. A. Bennett gives some preliminary impressions of histopathological changes in the adrenal and anterior pituitary lobe in patients treated with cortisone. He states that the use of cortisone and related hormones has produced a sequence of changes in both adrenals and pituitary. The adrenal changes consist of loss in weight of the gland and depletion of lipides. This process, which is reversible, represents an alterative atrophy associated with a decrease in function of the gland. The amount and duration of treatment and the patient's susceptibility to the hormonal agents play an important part in the atrophy, as also does the lapse of time between cessation of treatment and death. Adrenals affected by these reversible changes do not return to their original state of function in the same length of time in all cases. Thus, the cytological pattern alone does not determine when an adrenal is functioning normally. The changes induced in the pituitary by administration of hormonal agents indicate a disruption of the basophile cells characterized by changes in the granules, including loss of granularity and hyalinization with vacuolization. These are alterative changes and are reversible. When the pituitary is in a phase of this function, it probably delays the return of the adrenal cortex to normal, and this may be a factor in prolonging the induced adrenal insufficiency after cessation of treatment with cortisone. It is pointed out that it is necessary to be aware of these changes in the pituitary and the adrenals when cortisone has been given, because severe adrenal insufficiency may result from any additional stress to which the patient may be exposed during the phase of alteration of the basophile cells of the pituitary and recovery. "Individual susceptibility to cortisone cannot be measured; neither can the exact time be determined at which the adrenal gland returns to normal function."

The last article in the symposium is by R. M. Salassa, F. R. Keating, junior, and R. G. Sprague. They discuss clinical aspects of suppression of adrenal cortical function after the use of cortisone. It is stated that clinical studies by many workers have revealed the following evidence suggesting depressed adrenal cortical function after the use of cortisone. (i) Some patients have experienced weakness and fatigability after withdrawal of cortisone. (ii) Urinary excretion of 17-ketosteroids sometimes decreases soon after administration of cortisone has begun, and this decreased excretion persists throughout the period of treatment and for a variable time after the use of cortisone is stopped. (iii) The ability of the adrenal to respond to one or several doses of corticotropin, as indicated by a decrease in circulating eosinophile cells or an increase in urinary steroids, is diminished. (iv) Changes in the adrenals and pituitary can be seen at necropsy in some cases in which cortisone has been given. Two patients have died after operation at the Mayo Clinic of what appeared to be acute adrenal cortical insufficiency due to suppression of the adrenal cortex after the use of cortisone. These cases were reported in full in the literature. At autopsy in each instance, the adrenals were found to be atrophic. The clinical problem suggested by these facts is threefold. First of all, it is necessary to select from among the many patients who have received cortisone and who must undergo operative procedures, those who are likely to develop post-operative adrenal insufficiency. Secondly, it is necessary to prevent post-operative adrenal cortical insufficiency in those patients considered by the clinician to be susceptible. Thirdly, post-operative adrenal cortical insufficiency must be treated when it appears in those instances in which clinical judgement has gone astray and pre-operative treatment has been withheld or has been inadequate. The authors point out that although their paper deals principally with the hazard of adrenal insufficiency in relation to surgical treatment, it is apparent that the same hazard may be present in patients previously treated with cortisone who are subjected to other stressful conditions such as trauma or febrile illnesses. At present, it is difficult to decide which patients are liable to adrenal cortical insufficiency as a result of the previous use of cortisone. The great majority of patients are able to withstand the stress of operation without replacement therapy. Bennett has shown that the average of the adrenal weights has returned to normal after use of cortisone has been discontinued for twenty days or more. In the individual case it may be difficult or impossible to be certain of the adequacy of adrenal cortical function in relation to operative treatment. We do not know the minimal or maximal interval that must elapse after withdrawal of cortisone before the suppressive effect may be considered to be abolished, but on present evidence it appears safest to presume that any patient who has received cortisone in significant quantity within three to six months should receive prophylactic treatment. Patients who have had extensive hypercortisonism possibly may be more liable to persistence of impaired pituitary and adrenal function than those who did not have hypercortisonism. Ignorance extends further. The shortest period of treatment that will produce adrenal suppression is not known; neither is there any knowledge of the minimal dose of cortisone which will significantly impair renal function. Further, although it is quite evident that a great deal of individual variation is present in susceptibility or resistance to pituitary and adrenal suppression, we do not know how to anticipate or measure such individual variations. These authors express the view that all patients who have histories of prior treatment with cortisone, regardless of whether or not they have received pre-operative or prophylactic treatment, should be observed after operation as though the surgeon expected to encounter adrenal cortical insufficiency. If in spite of all efforts adrenal cortical insufficiency does occur, it is most likely to appear during the first twenty-four hours after operation. It may appear as sudden circulatory collapse, decrease in blood pressure, increase in pulse rate or perhaps an elevation in temperature. The patient may become unconscious rather quickly. The details of suggested treatment for this condition will not be mentioned. It is clear that at the present stage of knowledge unnecessary prophylactic treatment will often have to be given.

THE DESIGN AND OPERATION OF SEPTIC TANKS.

THE disposal of sewage other than through large organized systems still constitutes a problem in Australia, as in many other parts of the world. In these different areas many experiments on the subject have been conducted, with understandably divergent results, as has been pointed out in a recent monograph issued by the World Health Organization.[1] The variety of the results, it is suggested, perhaps accounts for the wide range of regulations, some of which cannot be considered as being in line with modern concepts of hygiene and the present state of knowledge on soil and water pollution. At the end of October, 1952, the third in a course of three European seminars for sanitary engineers took place in London under the sponsorship of the World Health Organization Regional Office for Europe, the Rockefeller Foundation and European host governments. At this third seminar a number of specialists in various aspects of sanitary engineering came together to discuss the problem of proper treatment and disposal of sewage coming from small groups of houses and isolated dwellings in unsewered areas, with special reference to those in Europe. The monograph contains a collection of some of the papers presented at the seminar and a synopsis of the discussions that followed. The first of the papers presented is by J. A. Scott, Medical Officer of Health to the London County Council, and it deals with health considerations involved in the treatment and disposal of sewage from isolated dwellings. F. Meinck, of Berlin, discusses factors govern-

[1] "Design and Operation of Septic Tanks: Third European Seminar for Sanitary Engineers", World Health Organization Monograph Series, Number 18; 1953. Geneva: World Health Organization. 9½" × 6¼", pp. 122, with 18 illustrations. Price: 7s. 6d.

ing sewage treatment in small sewage plants, and shows that for a variety of reasons this treatment must be approached from a different point of view from that required in municipal sewage treatment works. Principles of design for small domestic sewage treatment works are discussed by F. G. Hill, Advisor on Sewerage and Sewage Disposal to the British Ministry of Housing and Local Government, and G. Lloyd Ackers, Chief Sanitary Engineer to the British Ministry of Works. Two papers come from the Water Pollution Research Laboratory of the Department of Scientific and Industrial Research of Great Britain. One, by A. E. J. Pettet and E. E. Jones, is concerned with the treatment of domestic sewage in plants serving small groups of houses. In the other, L. A. Allen and Hazel M. Smith describe the effect of treatment of domestic sewage in small plants on the counts of fæcal bacteria, comparing their findings with the results of treatment in large-scale sewage works. Septic tanks and other small sewage treatment works in Switzerland are described by Walter Dardel, a consulting engineer from Berne, and in a brief concluding paper, E. Leclerc, I. Beeckmans de West-Meerbeeck and L. Ph. Philips present a comparative study of septic tanks.

It is not claimed that the conclusions presented in this monograph constitute the last word on the subject, since methods for the treatment of sewage are continually in the process of improvement. However, it is suggested that the basic data and principles given for the design and operation of this type of sewage installation, and especially the observations on maintenance, could serve as a useful guide to local health departments, sanitary engineers and others actively engaged in rural and urban sanitation in designing such units, and to national and provincial authorities who consider revising their regulations on sewage disposal. It is also hoped that the publication, in addition to providing information of value, will stimulate new experiments in methods of treatment and disposal of domestic sewage from small groups of houses and isolated dwellings. Although the contributors to this monograph had in mind the conditions pertaining in European countries, many of the problems presented and the solutions offered have a much wider application. Medical officers of health, sanitary engineers and others in Australia should find the monograph of interest and value.

IONS, CELL FUNCTION AND PERMEABILITY.

DURING the past few years considerable advances have been made in our knowledge of the enzyme systems within living cells which bring about the metabolic changes associated with cell function. A gap in our knowledge is the nature of the mechanism which at one time sets off cell metabolic activity and at other times causes it to cease. A particular case is what sets going the chain of events which lead to contraction of a muscle cell and the subsequent relaxation when an impulse reaches the cell. A. Szent-Györgyi,[1] who has done a great deal of work on the metabolic changes which occur in muscle cells during contraction and relaxation, has recently studied the changes in cell membrane permeability and the interchange of potassium ions between the inside and the outside of muscle cells during activity. He points out that all cells have a polarized membrane, inside of which is located the machinery by which the cell performs its specific function. The machinery is "excited", that is, put into action, by the depolarization of the membrane, which triggers off its specific activity, which, in muscle, is contraction. The qualities of the elicited contraction depend on the intracellular ionic mechanism. The difference between the intracellular concentration of potassium ions at which the heart muscle fibre is unable to develop any tension and the concentration of potassium ions at which it goes into contracture is very small, not more than 3%. The intracellular ionic atmosphere depends on the rate at which ions leave and enter the cell. He has found that with frog's heart muscle potassium is expelled through the cell membrane in every contraction, leaving behind a decreased concentration of potassium ions which favours the contracted state and with it the tension developed by the subsequent contraction. However, in the pause separating two contractions the expelled potassium tends to return, whereupon the conditions favourable to contraction deteriorate. How much potassium returns depends on the time between contractions and the permeability of the membrane. Under certain conditions, pathological or unphysiological, the permeability may be greatly increased, which leads to a decrease in tension which may, in some measure, be partly compensated by increasing the pulse rate. Szent-Györgyi sees the explanation of these changes in the physico-chemical properties of proteins. The protein molecule, the basis of all cell activity, is a structure with positive and negative points which are balanced and screened by ions. If one calculates the number of negative points on the cell proteins and the positive ions in the cell juice for every negative point there is not quite one positive ion to balance it. The removal of a very few ions from the cell juice will disturb the balance. What the protein will do if called to action will be decided by this balance, governed by the permeability of the membrane. The membrane will not only receive messages from the outside and decide with its permeability what should happen when the internal machinery gets going, but will also trigger off the machinery. In muscle cells the protein system is almost balanced by potassium ions. There has been much argument as to whether potassium in the cells is bound or free. Szent-Györgyi puts it as follows: "It's free and it's not free, like a married man who is allowed to do anything his wife wants him to do." The potassium in the cells can do anything the carboxyl groups of the proteins allow it to do. If the cell enters into activity, the different protein molecules, that is their carboxyl and amino groups, begin to balance one another and the potassium will diffuse away through the depolarized membrane. The proteins get together and the series of metabolic changes associated with activity can and do take place. The qualities of the next activity, say the next heart beat, will depend on how much of the potassium reentered in the pause between the two contractions. If the pause is too long, enough potassium may enter to balance or more than balance the proteins, and the heart will be unable to contract and develop tension, for the proteins cannot get together. This can occur, too, from excess potassium in the blood and tissue fluids. If not enough potassium is returned, the muscles remain in a state of contracture, for the proteins are not able to part. The author and his associates have found that in the heart cell the permeability to potassium is governed by steroids. Cardiac glycosides, such as the digitalis and strophanthus glycosides, greatly impede the inward diffusion of potassium and, in suitable doses, can thereby stabilize the favourable condition left behind by the single heart beats, enabling the muscle to develop a high tension at a low frequency. They conclude that these glycosides actually exert their therapeutic action by influencing the membrane permeability. Only about 5% to 10% of the cell surface is involved in this potassium ion concentration regulation; so if the steroid has a great affinity to this active portion of the surface, a very small amount of it may completely alter the permeability, and if too much is given send the heart into contracture. Normal serum contains substances which have such a digitalis-like action, but weaker. Certain adrenal steroids such as DAC have similar action, as also has progesterone, but for the heart very much larger doses are required than of digitoxin. Hormonal steroids may have similar activity in other than heart cells because of the great affinity of the cell membranes of these other cells for a particular steroid. Thus progesterone may do the same thing to the cells of the uterus as digitoxin does to the cells of the heart. There are indications that there are other steroids which have the opposite effect—increase of permeability to potassium ions.

[1] *Rev. canad. biol.*, October, 1953.

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Abstracts from Medical Literature.

OPHTHALMOLOGY.

Ocular Toxoplasmosis.

MICHAEL J. HOGAN *et alii* (*Tr. Am. Acad. Ophth. & Otolaryng.*, 1952) surveyed 338 cases of uveitis for evidence of toxoplasmosis, using the methylene blue dye test and skin test. Among these cases were several which were met with sufficiently early and in which the lesions were suggestive of toxoplasmic chorio-retinitis. From the survey the authors were able to conclude that the serum of over 50% of the patients yielded a positive result in the methylene blue dye test, usually in low titre, and approximately 15% had a positive result in the toxoplasmin skin test. A single positive result in the methylene blue dye test in a titre of 1:128 or less is of no value in establishing the diagnosis of toxoplasmic uveitis. The serum should be tested at intervals for evidence of a changing titre. The incidence of positive dye test results is higher in patients with posterior uveitis than in patients with anterior uveitis.

Sympathetic Ophthalmia.

HAROLD H. JOY (*Am. J. Ophth.*, August, 1953) reviews in detail the history of the various theories of sympathetic ophthalmia. He concludes from the review that infection must be present to cause sympathetic ophthalmia and that a virus is the most likely offending organism. He adds, however, that allergy to uveal pigment may be a factor in the production of the disease.

Surgical Aspects of Defective Abduction.

EDMUND B. SPAETH (*Arch. Ophth.*, January, 1953) discusses the surgical aspects of the retraction syndrome, *strabismus fixus*, so-called congenital sixth nerve paralysis and acquired sixth nerve paralysis. He states that the retraction syndrome is an oculomotor condition of limited abdution in which the eyeball, when abducted as much as possible in the individual case, manifests some degree of exophthalmos. When adduction is carried out enophthalmos occurs, and this is accompanied by pseudoptosis of the upper lid. The levator functions normally. The ptosis results from some backward traction upon the eyelid and from lessened support of the eyeball for the upper eyelid, both by reason of the enophthalmos. In addition, there is over-action of the inferior and superior oblique muscles. Any surgery contemplated is essentially surgery for cosmetic reasons with a hope of obtaining single binocular vision in the mid-line. A recession of the medial rectus is the first procedure to be carried out. Next the lateral rectus may be explored for the resection of pathological fascial bands, for the release of an hypertrophied external check ligament and for the resection of the external rectus muscle, if necessary. Surgery of the superior and inferior obliques is seldom indicated. Occasionally recession of the inferior oblique may appear to be indicated. *Strabismus fixus* may be considered to be a variant of the retraction syndrome. In this condition there is a rigid, fibrosed medial rectus muscle attached by a broad insertion to the sclera. The condition should be treated by free recession of the fibrosed muscle. So-called congenital sixth nerve paralysis is probably the commonest of the congenital ophthalmoplegias. In such cases there may be a pronounced manifest bilateral or unilateral convergent strabismus. Unilateral or bilateral recession of the medial rectus should be performed and then the patient observed until it is seen that further recovery will not occur, when tendon transplantation may be carried out. Acquired sixth nerve paralysis lends itself to the use of tendon transplants. If the paralysed eyes move to the mid-line with bilateral movements of both eyes towards the paralysed side, one may proceed immediately with the tendon transplantation combined with resection of the lateral rectus. If the eye does not move simultaneously to the mid-line, recession of the medial rectus should be performed as a primary procedure.

Ophthalmoplegic Migraine.

D. O. HARRINGTON AND MILTON FLOCKS (*Arch. Ophth.*, June, 1953) discuss the pathogenesis of ophthalmoplegic migraine. They state that the syndrome is characterized by paroxysmal, recurrent, transient partial or total ophthalmoplegia associated with severe hemicrania and with or without scintillating scotoma, homonymous hemianopsia, depression, general malaise, nausea and vasomotor disturbances. It frequently progresses to total and permanent unilateral oculomotor paralysis. The pathogenesis of migraine is due to vasoconstriction of the cerebral arteries, which produces the pre-headache phenomena, and the headache is brought about by vasodilatation of vessels of the scalp and dura. When dilatation of the cranial arteries is prolonged over several hours, a transient thickening of their walls results, and this may have an effect in producing unilateral intracranial volume changes of considerable degree. The pathogenesis of ophthalmoplegia migraine is unknown, but from an analysis of two cases and the post-mortem findings therein the authors are of the opinion that the condition is due to herniation of the hippocampal gyrus of the temporal lobe over the free edge of the tentorium, with pressure on the oculomotor nerve. Such a phenomenon would also explain the ocular palsies which occur in a percentage of cases of ordinary migraine. Similarly, the occurrence of contralateral transient hemiplegia and paresthesias of varying degree in association with attacks of simple migraine can best be explained by compression of the crus and pyramidal tracts by herniation of the brain through the *incisura* tentorii.

Surgical Correction of Blepharoptosis.

RAYNOLD N. BERKE (*Am. J. Ophth.*, June, 1953) discusses various types of ptosis operation. He states that the use of the frontalis muscle should be reserved for cases in which there is no levator or superior rectus muscle action. The success of the superior rectus type of operation depends on the formation of adhesions between the tissues of the upper lid and the superior rectus muscle. The chief disadvantages are the tendency to notch-formation of the upper lid, an induced weakness of the superior rectus muscle and an inclination to lagophthalmos in sleep. The main advantage is the synchronous movement of the lid with the cornea in all directions of gaze. Shortening of the *levator palpebræ* gives excellent cosmetic and functional results and is the operation of choice when adequate levator tissue is present. When there was a normal superior rectus, resection of the levator produced 57% to 78% success, depending on whether the levator action was poor or good. When there was poor superior rectus action, resection of the levator produced an excellent result in 47% when levator action was good. In the jaw-winking syndrome resection of the levator is contraindicated. The author concludes that in general resection of the levator is the operation of choice in all types of congenital ptosis, especially when relatively good levator action is present.

The Scleral Resection Operation for Retinal Detachment.

D. K. PISCHEL AND P. KRONFELD (*Am. J. Ophth.*, May, 1953) report their experiences in 150 cases of the scleral resection operation. They consider that the following are indications for scleral resection: (i) Shortage of the retina, which occurs (*a*) in eyes with detachments of long standing in which retina has undergone overall shrinkage, (*b*) in eyes in which shortage of retina has developed as a result of diathermy operations, (*c*) in aphakic eyes with shallow smooth-surfaced detachments, (*d*) in high myopic eyes with flat detachments and large zones of retinal detachment, and (*e*) in eyes with large disinsertions extending over more than one quadrant. (ii) Retinal detachments with starfolds in otherwise typical detachments with classical breaks or tears. (iii) Detachments due to traction from within caused by vitreous strands. The authors outline their technique in detail.

Meningiomata of the Sphenoidal Ridge.

THORNA P. KEARNS AND HENRY P. WAGENER (*Am. J. Med. Sc.*, August, 1953) discuss meningiomata of the sphenoidal ridge with special reference to the ocular signs. They state that intracranial meningiomata occur more commonly in women, and the average age of onset of symptoms is thirty-eight years. Although ocular symptoms are the same regardless of the side involved, psychotic and mental changes are more common when the left ridge is involved. Reviewing the literature, the authors found that with tumours of the inner part of the ridge unilateral failure of vision associated with primary optic atrophy was a characteristic onset. Unilateral proptosis occurred in a large percentage of cases. With tumours of the middle of the ridge bilateral papilœdema was an outstanding finding. Tumours *en plaque* produced unilateral exophthalmos and palpable swelling in the temporal regions. Surveying 106 of their own cases, the authors found that in 73 there were ocular disturbances only; these were loss of vision, increased prominence of one eye, diplopia, pain around one eye and swelling of the lids. Of the remaining 33 patients without ocular symptoms 15 had choked disks, seven had pallor of one or both disks, and three had pupillary abnormality. Sixty-three patients had loss of vision in one or both eyes, and the tumour

was on the same side as the eye with the greater loss of vision. After loss of vision proptosis was the most common ocular sign. It was usually straightforward, non-reducible and slowly progressive and dated back many years. The authors state that the proptosis is due to either invasion of the orbit or development of hyperostosis of bone in the walls of the orbit. Papillœdema occurred in 46 cases. Unilateral papillœdema probably results from local venous engorgement caused by direct pressure at the orbital apex by obstructions in the orbit, or from pressure on the cavernous sinus. Bilateral papillœdema or unilateral contralateral papillœdema is a manifestation of raised intracranial tension. Pallor of one or both disks occurred in 42 cases; primary optic atrophy is more common than atrophy secondary to papillœdema. Paralysis of ocular muscles occurred in 15 cases, and in eight of these limitation of movement was due to the proptosis.

Corneal Infection due to Pseudomonas Pyocyanea.

D. AINSLIE (*Brit. J. Ophth.*, June, 1953) reports on the use of polymixin E in the treatment of eight cases of corneal infection. Polymyxin E was prepared by dissolving 1,000,000 units in 0·5 mil of "Mydricain" and 0·5 mil of sterile water. This solution was stable for one week. The dosage used was 0·20 to 0·25 mil. The injections cause pain for about two hours after administration. In the cases reported daily subconjunctival injections were given until the infection was controlled. Failure to control infection occurred in one case necessitating evisceration. The visual acuity remaining at the end of treatment was poor, being in no case better than 6/24 and in most considerably less. The poor visual acuity is due to the density of the corneal nebulæ.

OTO-RHINO-LARYNGOLOGY.

Selection of Operation for Cancer of the Larynx.

J. J. O'KEEFE (*Ann. Otol., Rhin. & Laryng.*, March, 1953) states that a consideration of the following criteria must be entertained in order to select the proper surgical method of treatment for cancer of the larynx: (i) location and extent of growth, half again being added to the visible tumour in order to obtain a real estimate of its actual size; (ii) presence or absence of impairment of motility; (iii) presence or absence of metastases; (iv) grading according to Broder's classification; (v) general condition of the patient. Carcinoma entirely contained on the vocal cord while the cord is freely movable is the type of lesion properly selected for thyrotomy. It is well to eliminate the thought of conservation from one's mind, it being remembered that one is dealing with a deadly disease, and complete resection of the lesion must be of first consideration. Of a series of 193 cases in which operation was by thyrotomy there were 42 instances of recurrence, 29 reappearing locally. Of the 29, 23 were then treated by laryngectomy and six were treated by irradiation. All of the irradiated patients died. Of the 23 operated on by laryngectomy 12 ultimately died of cancer. Of the group of six with regional lymph nodes, one lived over five years after neck dissection; all the others died of cancer. Of the 29 patients with local laryngeal recurrence, in seven there was evidence of subglottic extension and in 18 there was extension to either the anterior commissure or the opposite vocal cord. Unquestionably all of these cases of local recurrence were due to incomplete removal at the time of the primary thyrotomy. Laryngectomy should have been the primary procedure. To hold laryngectomy as a secondary or reserve procedure in the event of recurrence is not justifiable. Of 20 patients not treated surgically 16 were irradiated; 15 of these died of cancer. It is warranted, on the basis of available data, to assert that a one-stage total laryngectomy with radical neck dissection is a well-founded procedure and that additional lives will be saved if it is considered one of the primary procedures. It is better that one lean toward the radical than toward the conservative side.

Ultrasonics and Otosclerosis.

Z. ANGELUSCHEFF AND L. E. COLEMAN (*Arch. Otolaryngol.*, October, 1953) state that the various acoustical phenomena all produce sonic and ultrasonic waves with frequencies ranging from 8000 to 80,000 cycles per second. A variety of mechanical, thermal, biological and biochemical effects have been observed from experimental exposure of living creatures and tissues to ultrasonic waves. Ultrasonics resisted by bony media can cause a temperature increase of 10° C. in that medium. The thermal effects are localized and concentrated at the margins and periphery of the exposed tissue, unlike the effect of diathermy, which is uniformly distributed throughout the exposed tissue. Ultrasonics have been shown to cause distinct alteration in collagenous and bony tissue. In bone the changes are greatest in the periosteum and endosteum. In a repeatedly exposed rabbit's ear there was progressive destruction of the collagenous structure ending in sclerosis. There is a striking similarity between the histological changes in otosclerosis and those produced experimentally by exposure of bone to ultrasonic wave vibrations. An explanation of this disease may well lie in the study of ultrasonic effects upon the susceptible ear.

Repair of Central Perforations of Tympanic Membrane.

E. L. DERLACKI (*Arch. Otolaryngol.*, October, 1953) states that the permanency of central perforations of the tympanic membrane is maintained by the epithelialization of the margins by the outer cutaneous layer having grown inwards to the mucous layer. This lining, as in any fistula, must be entirely removed in order to allow connective tissue to reestablish continuity. The epithelial barrier in these cases is destroyed by acid cautery and scarification. The method of repair of tympanic perforations as advocated by Linn consists of thorough repeated cauterization of the entire edge of the perforation with saturated solution of trichloracetic acid, applied with a small tightly wound cotton-tipped applicator, followed by the application of "protonuclein" powder which has been "activated" by exposure to ultra-violet light. A cotton pack moistened with "Euthymol" is then firmly pressed against the ear-drum. Two drops of "Euthymol" are subsequently instilled into the ear twice daily. The treatment is repeated every six days until the perforation is healed. The author reports the results of attempts to close a total of 143 perforations, selecting as suitable those which were central with a definite visible periphery of *pars tensa* remaining around the circumference of the *annulus tympanicus* and with the middle ear cavity lined by mucosa. The treated ears were dry at the beginning of the closure treatment. Cholesteatoma, mastoid disease and obstruction of the Eustachian tube were definite contraindications to attempted drum repair. Mixed sulphonamide powders or iodine and boracic powder were employed by the author instead of the irradiated "protonuclein" powder used by Linn. In some instances, after treatment at weekly intervals, the applications were made with a lapse of ten days to three weeks between them. In later cases 5% solution of urea in sodium chloride solution produced sufficient inflammatory response when "Euthymol" failed to do so. In some instances too much reaction was caused by twice daily use of the irritating solutions, so that their use was reduced to once daily or once every other day. In other cases the cotton patch and ear drops were omitted for one week until secretion ceased. Occasionally allergic reactions developed in the middle ear mucosa or external auditory canal, so that treatment had to be discontinued. Treatment also was suspended when intercurrent suppurative *otitis media* developed in a few cases. Of 143 central perforations treated, there was successful closure in 99. In 32 there was failure after a thorough trial of treatment. In the 99 successful cases there was an average hearing gain of 16·3 decibels; the greatest gain recorded for any one case was 42 decibels. The 99 successful closures were accomplished with an average of 14·6 treatments.

Transantral Excision of Spheno-Palatine Ganglion and Maxillary Nerve.

L. M. MORSE (*Ann. Otol., Rhinol. & Laryngol.*, March, 1953) states that it may be difficult to differentiate symptoms produced by the Gasserian ganglion from those of the spheno-palatine ganglion complex. When there is any doubt, the spheno-palatine ganglion and maxillary nerve should be resected first. The Gasserian ganglion can always be resected later if necessary. The operation is performed under local anæsthesia. The anterior antral wall is removed, as in the Caldwell-Luc procedure. The infraorbital nerve is isolated in the bony canal and is dissected from the soft tissues of the cheek back to the posterior antral wall, which is then removed with exposure of a dense layer of fascia; this is incised and the pulsating internal maxillary artery is brought to view. The vessel may have to be ligated. The spheno-palatine ganglion is then found extending downwards and medially from the maxillary nerve near its exit from the foramen rotundum. Ganglion and nerve are further dissected free and then resected. Two successful cases are described.

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Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

XCVI.

THE MANAGEMENT OF THE PATIENT WITH IMPAIRED RENAL FUNCTION.

THE term "impairment of renal function" is used instead of the more usual term "renal insufficiency" because a patient may have quite adequate renal function for his or her own particular needs but yet have impaired function. Patients with renal disease tend to pass from a state of normal function through a stage of impaired function to renal insufficiency or failure. Both the state of renal function and the patient will determine whether renal insufficiency exists or not—an elderly woman may live her normal life with a degree of impaired renal function that might spell death to a middle-aged *primipara*. It is essential to treat the patient with renal disease, for there is commonly something we can do for the patient but often little we can do for the renal lesion.

The aim of management is to enable the patient to carry on as normal a life as possible for as long as possible, but, if necessary, to modify his mode of living so that he may live within the limits of his renal function. The principles of treatment are, then, first to define the renal disorder and its effects on renal function, second to aid the patient in securing the best possible function from his kidneys, third to advise the patient how best to avoid renal insufficiency whilst still living a reasonable life, and fourth to be prepared for "complications" and to deal with them when possible.

The Underlying Renal Disorder.

It is of the greatest importance to determine whether the patient has a reversible or an irreversible form of renal functional impairment.

There are three main groups of patients with reversible renal functional impairment: (i) the group with acute parenchymal changes, exemplified by acute glomerulonephritis and toxic nephritides, such as those due to sulphonamides and toxæmia of pregnancy; (ii) the group with decreased renal blood flow exemplified by dehydration and shock ("extrarenal uræmia"); (iii) the group with obstruction to urine flow by calculi and tumours. These reversible, or partly reversible, causes of renal functional impairment are most important, for their treatment is usually clear-cut and leads to most satisfactory results—an elderly man may be cured of his advanced uræmia by dealing with his enlarged prostate. Recurrent renal infection should be included in the reversible forms of renal disease, for adequate early therapy may cure it, whereas the task is hopeless in chronic pyelonephritis with renal failure.

Patients with irreversible renal functional impairment may have superadded reversible failure due to some intercurrent disorder, and adequate treatment may restore them from uræmia to a state in which they can resume their former existence, still with impaired renal function. It is of great importance to determine if there is any acute or reversible factor that has induced renal insufficiency in the patient presenting with uræmia.

We usually think of irreversible renal damage when we say "renal insufficiency", and we think of three conditions—chronic glomerulonephritis, nephrosclerosis in hypertensive vascular disease and chronic pyelo-nephritis.

Chronic pyelo-nephritis is much commoner than we used to think, is usually bilateral and is indistinguishable in its later stages from chronic nephritis. If there is evidence of unilateral disease it is of the greatest importance to determine how good is the renal function of the other kidney, rather than how bad is the affected one, since removal of the "worse" kidney has induced irreversible renal insufficiency on many occasions. The duration of hypertension, the degree of vascular disease and the involvement of the sound kidney will determine the value of nephrectomy in reversing hypertension and preventing vascular disease.

Detailed discussion of other causes of irreversible renal damage, such as polyarteritis, disseminated lupus, diabetes, polycystic disease, tuberculosis, amyloid disease and so on, is out of place here. Specific measures must be directed to the cause of renal functional impairment whenever possible.

Gout is worthy of special mention, for gouty patients have a great liability to renal damage and to death in renal failure from nephrosclerosis and chronic pyelo-nephritis. Uricosuric agents, such as "Benemid" or acetylsalicylic acid, should be given together with adequate fluids and an appropriate diet.

Chronic nephritis and chronic pyelo-nephritis are the commonest causes of irreversible renal functional impairment and are often unrecognized until renal failure develops. The course may be very slow until associated diseases and complications interrupt, so that a patient may have clear-cut evidence of chronic nephritis yet live for twenty years without significant limitation. Nothing is to be gained and much can be lost by telling such a patient that he has chronic "Bright's disease". In other patients, especially children, the disease may have a rapid course, and the history and results of continued observation will indicate which type of progress is taking place—*tempus omnia revelat*. Hypertensive vascular disease is a common late complication of chronic nephritis, and its treatment is more difficult in the presence of renal insufficiency.

Evidence of Impaired Renal Function.

The presence of red blood cells and casts in the urine indicates damage to one or both kidneys, but gives little indication of the extent of damage or of the functional efficiency. Proteinuria tells us a little more regarding function than hæmaturia and casts, and indicates either that more protein is being filtered or that less is being reabsorbed or both, since some protein is probably present in the normal post-glomerular urine, but its almost total reabsorption results in urine clear to clinical tests. Significant protein loss is a factor in the development of œdema in some patients with chronic renal disease, but is seldom a major one except in the nephrotic syndrome.

Renal function is most easily assessed by determining the concentrating power of the kidneys, the blood urea concentration and the serum carbon dioxide combining power, and in some patients by carrying out a urea clearance test. The ability to produce a concentrated urine is a fundamental property of the renal tubule and is regularly disturbed in chronic renal disease. The urine concentration test indicates what the kidneys can do under stress, but tells us little of the use of these particular kidneys to the patient under consideration.

Renal insufficiency is present when the kidneys are no longer able to clear from the plasma the daily load of substances presented to them for excretion and are unable to reabsorb adequate amounts of substances requiring reabsorption. Normally functioning kidneys clear the daily load of urea when the plasma concentration is about 20 milligrammes *per centum*; depending on the rate of urine flow, 60% to 40% of the filtered urea diffuses back into circulation. When nephrons are destroyed, the amount of filtered urea is less, and the daily load may still be cleared by increasing the rate of urine flow (polyuria) and so decreasing the amount of urea diffusing back. With a declining filtration rate the only way to clear the daily load is by raising the plasma concentration, so that the amount filtered is increased; so a raised blood urea content indicates impaired renal function, but is a beneficial event in regard to the clearance of urea.

With progressive renal impairment more and more nephrons are destroyed, so that a stage is reached when organic acids, sulphates and phosphates fail to be excreted; the retention of these tends to cause an acidosis, which is recognized by the presence of a low serum carbon dioxide combining power and an elevated plasma inorganic phosphorus concentration. The liability to acidosis is increased by the inability of the patient with chronic renal insufficiency to produce an acid urine, because the tubules have an impaired ability to produce hydrogen ion and ammonia and there is inadequate phosphate filtered for proper buffering, so that fixed base is lost in the urine.

Of the other electrolytes sodium and potassium are of importance, but sodium, like chloride, is seldom retained as the result of uncomplicated renal insufficiency, except in the nephrotic syndrome and when there is complicating cardiovascular disease. A significant loss of sodium is common, and when marked gives rise to the so-called salt-losing nephritis. Potassium often is not excreted in normal amounts, and the determining factors appear to be the relationships between acidity of the urine, reabsorption of sodium, and capacity of the tubules to secrete potassium. It is wisest to regard potassium as being retained unless chemical determinations have been made and to use great caution in the administration of potassium salts to patients with renal insufficiency.

When the urine specific gravity becomes fixed at about 1010, there are two important results: (i) the failure to concentrate causes polyuria, and this may cause dehydration if inadequate water is ingested; (ii) the failure to dilute may cause significant losses of sodium and chloride when excess water is ingested, so that fluid intake should be adequate but not excessive.

The development of hypertensive vascular disease is common and does not parallel the degree of renal impairment, except in a very general way, but its presence adds to the liability to increasing renal functional impairment by the development of nephrosclerosis.

The development of nitrogen retention and acidosis is commonly accompanied by anæmia, which roughly corresponds in severity to the duration and degree of nitrogen retention.

The Treatment of the Patient with Impaired Renal Function.

The principles of treatment are based upon the changes occurring as the result of impaired renal function in the particular patient under consideration.

Minimize the Load on the Kidneys.

As urea is the chief osmolar substance in the urine, it has the greatest demand for water in its excretion, so its daily load must be minimized. Protein intake should be limited to less than 0·8 gramme per kilogram daily (30 to 50 grammes a day for the average patient); but if there is significant hypoproteinæmia or gross albuminuria, more protein should be given and a normal to high intake prescribed for the patient with the nephrotic syndrome. One usually aims at providing just enough nitrogen to ensure balance and ample Calories as carbohydrate and fat, but, in the uræmic patient, minimal protein and at least 1200 to 1400 Calories daily, during the acute phase. A useful way of doing this is by administering the Borst type of diet, consisting of "balls" of butter and sugar (icing or brown), given really cold, but no protein. In acute nephritis it is customary to give orange juice with glucose, but it must be remembered that most fruit juices are rich in potassium. When oral feeding is impracticable, the intravenous route must be used, and it is usual to give glucose or a glucose-fructose-alcohol mixture; the latter supplies one Calorie per ml and is less irritating to veins than glucose.

Adequate water must be given, so that the daily urine volume is about 2·0 to 2·5 litres, as dehydration is the forerunner of acidosis and uræmia.

There is no need to limit salt intake unless there is significant œdema, and six to nine grammes of salt (100 to 150 milliequivalents of sodium ion) daily is adequate in most circumstances.

Prevent Acidosis and Treat It when Present.

As the kidney has a limited capacity for the excretion of acid, the load must be limited and enough fixed base provided to cover it. The dietary limitations already mentioned will help to reduce the load of sulphates and organic acids, and phosphorus absorption can be limited by giving an aluminium hydroxide gel, such as "Amphojel", 10 to 20 mils daily. Adequate sodium must be given; but, in the present sense, sodium chloride is not the salt of choice, for chloride itself needs a full cover of fixed base in its excretion, so that it is desirable to administer sodium as the bicarbonate, citrate (Schohl's mixture with citric acid), acetate or lactate if there is acute or persisting acidosis.

Avoid Hyperkalæmia.

A tendency to retain potassium is common, and so potassium salts must be prescribed only with great care, and it is well to remember that some mixtures, such as *Mistura Lobeliæ Composita*, contain considerable amounts of potassium, as do most fruit drinks, "Coca Cola" and cocoa. Alkali therapy means sodium therapy in renal insufficiency. Potassium deficiency does sometimes occur, and it should be carefully corrected.

Avoid Hypocalcæmia.

Some patients have a low serum calcium level, which is usually related to a high serum phosphorus level, and may later develop secondary hyperparathyroidism and even gross osseous changes. Calcium lactate or gluconate should be administered to patients with low serum calcium levels in doses of 10 to 20 grammes a day and tetany avoided.

Management of the Patient.

Activity should not be limited simply because there is albuminuria; impaired renal function and renal insufficiency are not of themselves indications for rest, though some limitation may have to be imposed. The chief indications for rest are activity of the underlying disease, an episode of uræmia, cardio-vascular incompetence, intercurrent infection and severe anæmia.

It is important to assess the patient's condition at regular intervals, the frequency depending on the progress of his disease, but hardly less often than each six months. Urine testing, especially determining the specific gravity and microscopic examination of the sediment, cardio-vascular examination, including examination of the *fundus oculi*, and estimation of the blood urea concentration, hæmoglobin concentration, total protein concentration and serum carbon dioxide combining power should be carried out from time to time. The concentration of sodium and potassium should be determined when this is practicable.

Intercurrent infections can be lethal for patients with impaired renal function, especially if they are elderly and hypertensive. Gastro-enteritis from simple food poisoning may induce sufficient dehydration and hypotension to convert renal functional impairment into renal insufficiency—the fall in blood pressure and renal vasoconstriction may reduce renal blood flow virtually to zero. Every effort must be made to avoid these infections, and treatment must be adequate from the earliest opportunity. Upper respiratory tract infections, especially streptococcal, have a particular significance in nephritis, and antibiotic treatment must be instituted promptly.

Pregnancy is most hazardous in the presence of renal insufficiency, though some degree of impairment of renal function may not be an absolute contraindication.

Treatment of Complications.

Anæmia.

The severity of the anæmia roughly parallels the degree and duration of nitrogen retention, and it does not respond to iron, liver, vitamin B_{12} or folic acid, as it is not due to deficiency of these substances. Blood transfusion will raise the hæmoglobin concentration; but it must be carefully considered before being advised, since Scandinavian workers have shown that renal function may further be decreased and a lethal uræmia induced when anæmia is corrected by transfusion in patients with chronic nephritis. Platt suggested that the amount of plasma brought to the kidney for filtration per unit time is diminished when the hæmatocrit is raised by transfusion, as renal damage prevents any increase in renal blood flow. Bleeding episodes may demand blood transfusion.

Œdema.

Œdema is not a specific feature of renal impairment or renal insufficiency and is usually related to cardio-vascular changes and salt retention or to protein loss. Its presence may demand salt restriction and may make management complicated since mercurial diuretics cannot be used freely. It is difficult to predict how much sodium should be given, and, by trial and error, one tries to steer the patient between the Scylla of œdema and the Charybdis of acidosis. The presence of œdema may indicate that more protein has to be taken, but increasing the dietary protein seldom raises the serum protein concentration to a significant degree. Patients with renal impairment should be weighed regularly, so that the presence of œdema may be recognized early.

Hypertension.

Methonium compounds may be used for the control of symptoms, but especial care must be taken, as a hypotensive episode may so diminish renal blood flow as to induce acute renal failure. Cardiac failure is treated in the usual manner.

Pericarditis.

Pericarditis is usually but not always a terminal event, and specific treatment is unavailable.

Other Complications.

Hiccup, nausea and vomiting may be difficult to control in the uræmic patient, but measures directed to their relief are urgent as their presence can rapidly so diminish fluid intake that acidosis and uræmia quickly appear. Persistent hiccups may be very difficult to manage, and carminatives, eyeball pressure, carbon dioxide inhalation and sedatives are tried before the phrenic nerves are injected or crushed.

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Headache is common and best treated by mild sedatives.

Muscle cramps may be due to tetany or to the low salt syndrome and are appropriately remedied, but there may be no clear explanation, and quinine or "Benadryl" may be tried.

Pruritus is very difficult to control in the older patient, and sedatives should be given.

C. R. B. BLACKBURN,
Sydney.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on September 17, 1953, at Sydney Hospital. The meeting took the form of a series of clinical demonstrations by members of the honorary medical and surgical staff of the hospital.

Thrombosis of the Left Posterior Inferior Cerebellar Artery.

DR. E. H. STOKES showed a woman, aged fifty-five years, who had suffered from thrombosis of the left posterior inferior cerebellar artery. She had been admitted to Sydney Hospital on April 15, 1953, having been referred by Dr. C. F. Laidlaw. On admission, she gave a history of the sudden onset of pain on the left side of the face and in the precordium, hoarseness, dysphagia and giddiness. On examination, it was noted that the patient was conscious and cooperative, but slow in speech and thought. The voice was hoarse. The left pupil was smaller than the right; diplopia due to weakness of the left lateral rectus and nystagmus were present. Analgesia and thermoanalgesia were present on the right side of the face and body. The cardiac apex was situated in the fifth intercostal space five inches from the mid-line. A mitral diastolic murmur and loud first heart sound were noted. Auricular fibrillation was present, the cardiac rate being 78 per minute. The blood pressure readings were raised, being 190 millimetres of mercury, systolic, and 120 millimetres, diastolic. The urine was acid in reaction, with a specific gravity of 1·026, and contained a trace of sugar.

The diagnosis was confirmed by Dr. W. Scott Charlton. Dr. Bruce Hill noted a constant rotatory nystagmus which was accentuated on looking to the left, and he also found that retinal arteriosclerosis was present. Laryngoscopic examination showed that the patient was unable to abduct the left vocal cord, which was in the cadaveric position. The patient made a slow recovery. Her voice improved, but the left vocal cord was still paralysed on her discharge from hospital on July 17, 1953. Thermoanalgesia of the right side of the face and body was still present. Slight ataxia was noted. Since leaving hospital, the patient had continued to improve slowly.

Dr. Stokes remarked that the patient presented a classical picture of thrombosis of the posterior inferior cerebellar artery. This was a comparatively uncommon lesion. The clinical features could be explained on an anatomical basis. The pain on the left side of the face was due to involvement of the descending root of the fifth nerve. The diplopia and weakness of the left lateral rectus were caused by implication of the sixth nerve. The seventh nerve and the cochlear division of the eighth nerve were unaffected. The vertigo, vomiting and nystagmus resulted from affection of the vestibular nucleus of the eighth nerve. The ninth nerve was unaffected. The dysphagia and vocal cord paralysis were caused by affection of the tenth nerve. The smallness of the pupils resulted from involvement of the sympathetic centre, while the ataxia was caused by affection of the cerebellar tracts; the analgesia and thermoanalgesia of the opposite side of face and body were due to involvement of the spino-thalamic tract. The patient also suffered from mitral stenosis, as a residue of rheumatic fever at the age of ten years, and hypertension. The initial precordial pain was probably anginal in nature.

Juvenile Thyrotoxicosis.

Dr. Stokes's second patient was a girl, aged sixteen years. She had been under observation since she was eight years of age, when it was found that she had been suffering from thyrotoxicosis for at least two years. She had been an inpatient on five occasions, twice during 1946, twice during 1952 and once in 1953. On her first admission to hospital during 1952 propyl thiouracil had been used with very little effect. "Mercazole" in doses up to 16 milligrammes daily had also been administered, but it was found that she suffered from neutropenia. During her second admission in 1952, "Mercazole" was again administered with very little effect on the disease. Finally, when she was admitted on February 6, 1953, the salient clinical features were a large soft thyroid gland, exophthalmos, tachycardia, tremor and warm moist hands. A thrill was palpable over the thyroid gland, and a continuous bruit was also present. The pulse rate was 124 per minute, and the blood pressure readings were 170 millimetres of mercury, systolic, and 90 millimetres, diastolic. The exophthalmos was of a very severe degree. The patient was very restless and unsettled. The basal metabolic rate was +66% and the serum cholesterol content 130 milligrammes per 100 mils. "Mercazole" was prescribed in increasing doses until she was finally taking 24 milligrammes daily. Pyridoxine was also administered in 100 milligramme doses thrice daily, and the neutrophile leucocyte count was not depressed as it had been on previous occasions. During the ensuing weeks the toxic symptoms abated, and the gland became softer and smaller. On April 9, 1953, it was decided to administer Lugol's iodine, five minims three times daily, preparatory to operation. On April 22, Dr. C. E. Winston performed partial thyroidectomy. After operation, the patient developed pneumonia for which 3,000,000 units of penicillin were given for three days. She made a rapid recovery, and left hospital on May 1, 1953. The pulse rate on discharge was 84 per minute. The pathologist's report on the thyroid gland indicated that the histological appearances were consistent with thyrotoxicosis, treated with iodine. The weight of the gland was 112 grammes.

Dr. Stokes expressed the opinion that the prolonged preoperative treatment had been an important factor in obtaining a successful result in this case.

Clinical Photographs.

Dr. Stokes finally demonstrated a series of clinical photographs including a portrait of a patient suffering from *anorexia nervosa*, von Recklinghausen's disease and thyrotoxicosis, X-ray films showing pericardial effusion (Dr. A. J. Hood Stobo's case), cardiac enlargement probably due to beriberi heart, ventricular aneurysm and neoplasms of the lungs probably secondary to hypernephroma, and electrocardiograms showing paroxysmal ventricular tachycardia and right bundle branch block with auricular fibrillation. The photographs were taken by Mr. R. Money, photographer to Sydney Hospital. Dr. Stokes also showed photographs of a television demonstration held at Sydney Hospital in February, 1950.

Paroxysmal Ventricular Tachycardia.

DR. W. E. FISHER showed a single man, a truck driver, aged twenty-two years, who suffered from paroxysmal ventricular tachycardia. The history was that on July 31, 1953, the patient had become ill with headache, pain in the back, anorexia and a temperature which rose to 104° F. He was restless, sweating and thirsty. On the afternoon of August 6, 1953, he vomited once and became aware that his heart was racing. He was admitted to hospital at 7.30 p.m. on the same day, and was then pale and restless. His pulse was barely perceptible; his heart rate at the apex was about 230 per minute. His blood pressure was 90 millimetres of mercury, systolic, and 65 millimetres, diastolic. His respiration rate was 26 per minute and his temperature 102° F. Nothing else of note was found on physical examination. It was learned that he had been having treatment with sulphonamides for four days. Nothing relevant was obtained from investigation of his family history or the history of previous illnesses. He smoked one ounce of tobacco and drank five schooners of beer per day. He had been painting in a confined space for the past three weekends. Penicillin therapy was commenced on August 8, and his temperature quickly returned to normal. On the same day treatment was commenced with "Pronestyl", one gramme four hourly by mouth, and continued for forty-eight hours. His pulse rate, which had dropped to 160 per minute before the commencement of this treatment, remained unchanged. On August 9 treatment with quinidine sulphate was begun, and in less than twenty-four hours his pulse had fallen in rate to 80 per minute and was regular. That evening, while he was distressed by a distended bladder, the pulse rate rose to 160 per minute for four hours. After

removal of 38 ounces of urine by means of a catheter, the pulse rate returned to 80 per minute and had remained at normal levels since. Quinidine treatment, in a dosage of three grains three times a day, was continued until August 21. His blood pressure on August 11, after the return to sinus rhythm, was 130 millimetres, systolic, and 90 millimetres, diastolic. One week after his discharge from hospital (on September 11) it was 160 millimetres, systolic, and 95 millimetres, diastolic. Various special investigations revealed little of significance. Dr. Fisher demonstrated X-ray films showing the cardiac silhouette on August 10, at the cessation of tachycardia, and on August 29, when the patient was discharged from hospital. He also showed electrocardiograms which revealed ventricular tachycardia at the rate of 230 per minute and of 160 per minute, and sinus rhythm at the rate of 80 per minute, with a widened *QRS* complex and *S-T* depression. He said that questions to be discussed in relation to the case were the possibility of Wolff-Parkinson-White syndrome, ventricular tachycardia supervening on a pyrexia of unknown origin and acute myocardial infarction. The effect of pronestyl also had to be considered. At the time of the meeting the patient had been discharged from hospital for two weeks and was now back at work as a truck driver.

Sulphæmoglobinæmia from Pyridium.

DR. A. RUMORE showed a man, aged forty-five years, who had been treated at the urology department for carcinoma of the prostate and widespread metastases since May, 1951. He had been receiving stilbœstrol and dienœstrol tablets. From March to August, 1953, he had been receiving pyridium tablets, one or two four times a day, but was having no other drug. On July 30, 1953, at the urology out-patient department, the patient had been noted to have cyanosis, although he himself had not noticed it and it was not causing symptoms. He was very blue, particularly in the face, ears and extremities. He had no dyspnœa. Blood examination revealed a hæmoglobin value of 9·7 grammes *per centum*, and a leucocyte count of 6500 per cubic millimetre. There was evidence of orthocytic orthochromic anæmia. Spectroscopic examination of the blood revealed an abnormal pigment consisting mainly of sulphæmoglobin, with a small proportion of methæmoglobin. The results of Wassermann and Kahn tests were negative. X-ray examination of the chest revealed clear lung fields, a slightly enlarged heart and multiple metastases in the ribs. The administration of pyridium was ceased, and since then the cyanosis had considerably diminished. Dr. Rumore said that pyridium was a compound derived from aniline. It was rapidly eliminated in the urine, to which it imparted an orange colour. It had a feeble action against some bacteria, but it was mainly used as an analgesic in the treatment of urinary infections. No report of a similar case to the present one could be found in the literature. Only one case of methæmoglobinæmia had been reported in a child of three who had been given adult doses of pyridium. It had been learned from the manufacturers that in some cases the drug had been used continuously for years and no similar effect had been noted. Dr. Rumore went on to say that methæmoglobinæmia was due to the direct chemical action of drugs on the hæmoglobin of the circulating red cells. It occurred after acute poisoning with aniline derivatives, and rapidly disappeared; its effects were easily reversible with methylene blue. Sulphæmoglobinæmia was caused by sensitization of red cells, which resulted in a combination between hæmoglobin and hydrogen sulphide; it was not reversible and therefore persisted for several weeks—in other words, until the destruction of the red cells containing the pigment. Many authorities suggested that the hydrogen sulphide was formed in the bowel, as the result of constipation, and combined with the hæmoglobin after being absorbed; but in 62 cases reported in one series, only 26 of the patients suffered from constipation. In the present case the patient was very constipated. The only treatment was to suspend the drug. Rarely blood transfusion might be indicated.

Psychiatry Demonstration.

DR. I. A. LISTWAN presented a psychiatry demonstration in which he described newer approaches in psychotherapy including a demonstration of the use of the tape recorder.

Narcoanalysis.

In a discussion on narcoanalysis, he referred to two cases in which there had been need for short-cut psychotherapy, with a hope that revival of forgotten material might have some therapeutic effect. In the first case, one of amnestic fugue, the patient, a man, aged fifty-six years, had disappeared from home for five weeks without a precipitating shock. Under "Pentothal" anæsthesia, his memories were revived step by step and recorded on a sound track. When played back to the patient, the recording firstly caused an emotional abreaction, and secondly stimulated still more forgotten memories, this time on the conscious level. The patient improved and returned to his normal activities after two narcoanalytical sessions. In the second case, an Œdipal situation could be activated after only one injection of "Pentothal", and the dynamics operating could be clearly demonstrated. They were hatred of the father and longing for the mother, with fantasies of killing the father, which were unacceptable to the patient, who sublimated them into acceptable domination by joining the police force.

On the basis of these two recorded cases, Dr. Listwan outlined the principles of narcoanalytical treatment. He said that under the influence of barbiturate derivatives injected intravenously inhibitory cortical patterns of behaviour were obliterated, and more primitive and emotionally charged memories, conflicts and fantasies formed in earlier life were exposed and became directly susceptible to psychotherapeutic attack. He said that the indications for narcoanalytical treatment were psychoneuroses in which a traumatic event played a significant part, cases of amnesia, the need for short-cut therapy in the out-patient department of general hospitals, and strong resistance of patient in "wake" psychotherapy.

Picture Frustration Responses.

In a discussion on picture frustration responses, Dr. Listwan said that regression to a childish level was frequently helpful in life. It was also helpful in treatment, by giving the necessary relaxation. Demonstrating the principles of the method, he said that pictures illustrating mildly frustrating and unfinished everyday social situations were used as a stimulus, and responses from the patient were invited. The patient should identify himself with one of the persons. Facial features were omitted from the pictures to facilitate identification. The test had been used as a diagnostic instrument by Rosenzweig. An attempt had been made to use it as a therapeutic tool by projecting the pictures on a screen and noting the responses of a sample group of seven neurotic adults. The responses varied from aggressiveness and hostility towards others to introverted aggressiveness, to blaming of oneself and guilt feelings. In some responses the constructive solution of a problem was suggested in other normal circumstances, and time factors were expected to solve the problem. By discussing the responses, an opportunity was given to understand different reactions in social settings, with a view to the reorientation of one's attitudes. The test also proved particularly helpful in treating problem children in groups, as though it resembled a game. In all the cases used by Dr. Listwan in the demonstration a recording had been made on a sound track, so that the advantages of using the method in treatment and teaching could be demonstrated.

Disseminated Sclerosis in Schizophrenia.

DR. O. SCHMALZBACH then showed a single man, aged twenty-eight years, a clerk by occupation, and an only child. His father, a retired insurance official, had died at the age of sixty-six years, about one year previously. His mother had died when he was a child, and he just remembered her vaguely. One year after the death of his mother, his father had remarried, but the patient did not get on very well with his stepmother. He attended private schools for two years, but left school at the age of sixteen years, after he had sat for the intermediate certificate and failed. His only hobby was a minor interest in cricket. After leaving school he worked as an office boy for six months, and left because he "did not like it and wanted to leave". He then worked as a clerk in a shipping company, where he became ill; his nerves were "not too good". He was admitted to Bayview House private mental hospital, and was there for over twelve months, during which he received electroconvulsive therapy. After his discharge from hospital, he went on a holiday to his uncle in the country, and whilst there got some work on a farm for one month; then his present illness developed. His family history was of no significance, and revealed no evidence of hereditary factors. He had no history of physical illnesses or of operations. When asked about his sexual life he gave evasive replies and admitted masturbation for a short period without feelings of guilt. He did not drink, smoke or take drugs. In December, 1947, when aged twenty-two years, the patient was sent to the Reception House by his general practitioner because he became violent. He was then certified and sent to Callan Park. At the Reception House he was confused, dull, inert, solitary, depressed and not interested in his surroundings, unable to give a sensible

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account of himself, and fearful and apprehensive. On admission to Callan Park he was fully conscious and his attention was fair. He was aurally hallucinated and could hear voices talking about him and telling him that his father was going to "turn him down". His ideation was retarded. He was delusional, particularly in relation to his father's being against him, but he was vague and foolish, and incoherent in his statements. His orientation for time and place was fair. Effectively he was dull and deteriorated. He was self-absorbed and asocial, showed some echolalia and was hesitant and slow in speech. There was no evidence of suicidal attempts. He was untidy in his habits and indifferent towards his environment. At the time, physical examination revealed no abnormality. His blood pressure was 140 millimetres of mercury, systolic, and 88 millimetres, diastolic. Neurological examination showed no abnormality. The patient stayed in Callan Park for five years, during which he showed no improvement. After electroconvulsive therapy his general mental condition was unchanged, and in the course of time he further deteriorated. He was mostly idle and expressed no wish to be discharged. Dr. Schmalzbach went on to say that this well-developed picture of simple schizophrenia had been complicated by a neurological condition which started about three months before the time of the meeting, when it was noticed that the patient had some gait difficulties. Examination of the patient on August 18, 1953, showed no abnormality of the cranial nerves or of the ocular fundi, but there was slight asymmetry of the face on the right. Evidence of disturbances in sensitivity was difficult to obtain because of the patient's mental condition. No abnormality of the upper extremities was found, apart from some degree of active muscular hypertension. The reflexes were bilaterally equal. Intention tremor was not present, but there again the lack of cooperation from the patient made it difficult to be sure. Sensory functions could not be decided in a reliable way. No ataxia was present. Abdominal reflexes were present, but it seemed that on the right side they were diminished. In the lower extremities the knee and ankle jerks were brisk and exaggerated, more so on the right side than on the left. Pseudoclonus of the right knee was constantly elicited. The plantar response was extensor on both sides, being greater on the right side than on the left, and that response had been consistently present on every subsequent day. At times, a Rossolimo sign could be detected on the right side, but otherwise no pyramidal signs were evident. The vibration sense could not be tested because of the patient's mental condition. His gait was to some degree spastic on the right side. Cerebro-spinal fluid obtained by lumbar puncture on August 19 contained 12 leucocytes per cubic millimetre and increased globulin. The colloidal gold curve was represented by the figures 4432221100-0. The result of a Takata-Ara test was negative, as were those of Wassermann tests on the cerebro-spinal fluid and blood. Dr. Schmalzbach said that in view of the lumbar puncture findings and of the results of neurological examination, there was little doubt that the picture presented corresponded with one of disseminated sclerosis. A "positive" Lange curve and objective neurological symptoms were characteristic for the syndrome. The association of disseminated sclerosis with a schizophrenic personality was rare.

A Neurological Disorder with a Psychosomatic Aspect.

Dr. Schmalzbach then showed a young storeman, aged twenty-one years, who had been referred from the ear, nose and throat department to the neurology out-patient department in May, 1953. He then complained of infraorbital pain on the left side with radiation to the area of the left eye and side of the nose. In June he was admitted to hospital for infraorbital injection, from which he obtained great relief. On July 3 he complained again of pain in the nose and forehead. A fortnight later he was interviewed again, and on his clinical card was a note made by the neurosurgeon to the effect that no abnormality had been found on examination and it was suspected that his complaints were of psychogenic nature. It was then revealed that the patient had been nervous for nine months and that he used to "shake all over". He admitted that he had been depressed and that everything had turned against him in the last two years. During a half-hour interview he did not once mention his complaint of pain in his nose or elsewhere. The patient had been interviewed on several further occasions, and his personal history, supplemented by the social history taken by the almoner, confirmed the psychogenic origin of the patient's neurological condition. It was found on investigation that the patient's early life had been particularly unsettled and unhappy. He was born in the country, but at the age of five years his mother brought him, together with his four-year-old brother, to Sydney, and suddenly abandoned them in a children's home. The patient remembered this experience vividly, including how lonely, frightened and miserable he had been during the eighteen months he had spent there. For the next seven years his mother had taken them with her as she moved around various coastal towns. She worked to support herself and the children, but they lived mostly under primitive conditions. The patient said that his mother tried to provide for their material needs, but she gave them little real affection or care. The patient's formal education was disrupted owing to the continual changing of schools, though on the whole he enjoyed his school life and did quite well. However, he always felt inferior to the other boys because he had no proper home and knew nothing of his father. He compensated for this by becoming tough and was very proud of his prowess and reputation as a fighter. At the age of fourteen years he started work in a grocery store, but soon afterwards he left home and went to the country to seek employment there. He worked extremely hard, doing all kinds of heavy labouring jobs on the land and earning high wages. He was able to buy his own truck and later embarked on a wheat venture with another farmer. Unfortunately the crop failed and he lost all his savings, amounting to several hundreds of pounds. The present situation was that he had now been back in the city for several years, working at first in the building trade and later as a storeman. He had recently left his last job and since then had been busily occupied building his own house, where he planned to take his mother and brother to live. The patient said that he had never had any feeling of security, but had always had to accept a great deal of responsibility, to fend for himself and to protect his younger brother. He said that he was a man before he was a boy. Over the past two years he had become increasingly depressed and felt that everything and everybody were against him. He brooded over his early life experiences, his ignorance about his father and his financial failures. He said that his uncertainty and fears had greatly increased over the last few months and he had become moody, bad-tempered and distrustful of people generally. He was afraid of losing his grip on life and felt hopeless about the future. The patient said that he had had no sexual experience and showed no interest in girls because "he looked ugly", although, in fact, he was quite a good-looking young man. Dr. Schmalzbach said that the patient had received a short course of elective psychotherapy and had improved greatly and lost all his pains in the past eight weeks. His own statement was that he did not think of that any more.

Landouzy-Déjérine Muscular Dystrophy.

Dr. Schmalzbach's third case was one of progressive muscular dystrophy of Landouzy-Déjérine type occurring in a man with a history of epilepsy. Details of the case will be published in full at a later date.

Left Hemicolectomy for Diverticulitis.

DR. R. J. MALCOLM and DR. T. E. WILSON showed a man, aged sixty-two years, who had been first examined at the Sydney Hospital rectal clinic in November, 1950, when he gave a history of excision of an anal fistula and hæmorrhoids in 1946. His bowels had been open 20 to 30 times a day since then. He was obese and admitted to drinking many glasses of beer per day. The tone in his anal sphincter was good, and sigmoidoscopy showed no abnormality to a level of 25 centimetres. Apart from his being overweight, his general condition was good for his age. The findings from examination and culture of his fæces were normal except for some blood and increased mucus. His basal metabolic rate was normal. The results of barium meal and fractional test meal examinations were also normal. On December 19, 1950, barium enema examination showed "diverticulitis of the descending and sigmoid colons"; and when it was repeated on May 18, 1951, the appearance of the colon was unchanged. He was treated with "Normocol", *Mistura Catechu et Opii*, phenobarbital, phthalyl sulphathiazole, "Amphojel", *Mistura Bismuthi Sedativa*, atropine, "Kaomagma" *et cetera* without effect. Some slight reduction in the number of bowel actions was obtained on greatly reducing his fluid intake, but after a couple of days he would not cooperate with such restriction. On July 14, 1953, a left hemicolectomy with end-to-end anastomosis of the proximal end of the transverse colon to the rectum was performed. The pathologist gave the following report: "A segment of large intestine 30·0 cm. long was received. There were numerous wide shallow mucosal diverticula throughout the specimen. None showed extension through the muscle coat to the surrounding adipose tissue. Microscopic examination:

sections confirm the naked-eye appearances. The muscular coat of the colon is thinned in relation to the diverticula and mild chronic inflammatory changes are present." On August 1, 1953, the patient was discharged to his home. His convalescence was uneventful, and the bowel actions now averaged about five per day.

Early Carcinoma of the Stomach.

Dr. Malcolm and Dr. Wilson then showed a woman, aged fifty-six years, who had suffered for three years with epigastric pain which radiated along the left costal margin. The pains were relieved by antacids and milk, and were aggravated by greasy foods. She had not lost weight recently. A barium meal examination showed a "filling defect of middle of the greater curvature of stomach with an absence of peristalsis in this region". On January 13, 1953, a partial gastrectomy (Billroth I) was performed. There was no evidence of metastasis. The pathologist reported on the excised specimen that it consisted of a segment of stomach measuring approximately 7·0 centimetres along the lesser curvature. About the middle of the specimen along the greater curvature there was a depression in the mucosa 4·0 centimetres long and 0·5 centimetre wide, suggesting an almost healed chronic peptic ulcer. The adjacent mucosa was thick and polypoidal. Microscopic examination of sections showed carcinomatous change in an almost healed chronic peptic ulcer. The carcinoma cells were arranged in groups and small columns, and there was infiltration of the muscle coat and subserosa in one situation. Metastases were not found in the three regional lymph glands examined. After the operation convalescence was uneventful, and the patient was discharged to her home on January 30, 1953. Since then she had remained free of symptoms.

Restorative Resection for Carcinoma of Rectum.

Dr. Malcolm and Dr. Wilson next showed a woman, aged fifty-three years, who had attended Sydney Hospital in May, 1953, complaining of a "feeling of incomplete emptying of the bowels" for the previous six months and of bleeding *per rectum* for one week. Her abdomen was slightly distended, but her general condition was good. Fourteen centimetres from the anus a carcinoma was visible through the sigmoidoscope and was palpable with the end of the finger. On June 9, 1953, an anterior (intraabdominal) resection of the rectum with end-to-end anastomosis was performed after four days' preparation of the bowel. No macroscopic evidence of metastases was found, and the growth was not fixed. The pathologist gave the following report: "A segment of large bowel 18·0 cm. long was received. Situated at least 3·0 cm. from one end there was a carcinomatous ulcer 4·0 cm. in longitudinal diameter and almost encircling the bowel. The growth extended into the muscle coat and adjacent adipose tissue. Microscopic examination: the growth is an adenocarcinoma. Metastases have not been found in the three regional lymph nodes examined." On July 11, 1953, the patient was discharged to her home with the wound healed, her bowels regular and no incontinence. The suture line was palpable about two inches from the anus. On September 9, 1953, a barium enema examination showed "no local narrowing or obstruction".

Restorative Resection of Rectum for Villous Papilloma.

The last patient shown by Dr. Malcolm and Dr. Wilson was a man, aged sixty-four years, who had been admitted to Sydney Hospital on June 27, 1953. He gave a history of receiving injections for hæmorrhoids two years previously; but although there had been intermittent bleeding since then, he had not reported back. There was now a soft, flat, friable papilloma two and a half inches in diameter on the anterior rectal wall with its lower edge less than three inches from the anus. Biopsy and microscopic examination showed that the tumour was a papilloma with evidence of very early malignant change. On July 7, 1953, an anterior (intraabdominal) resection of the rectum with end-to-end anastomosis was performed after preparation of the large bowel with three grammes of phthalyl sulphathiazole and 0·5 gramme of streptomycin thrice daily for four days. At the end of the operation the anastomosis was situated below the pelvic peritoneum. The retroperitoneal tissues were drained by a tube, which was removed in four days. Sero-purulent discharge persisted for two weeks and then ceased. The pathologist gave the following report: "A segment of large intestine 13·0 cm. long was received. Arising from the mucous membrane at one end of the specimen there was a flat papillary new-growth 7·0 cm. × 6·0 cm. The tumour was apparently confined to the mucous membrane and the muscle coat did not appear to be infiltrated. Microscopic examination: the growth is a papilloma showing changes in the direction of malignancy. Sections confirm that the muscle coat is not involved and metastases have not been found in the seven regional lymph glands examined." On August 18, 1953, the patient was discharged to her home with the wound firmly healed. The bowels were regular, and control was good. The site of the anastomosis was readily palpable *per rectum*.

Pharyngectomy for Post-Cricoid Carcinoma.

Dr. Wilson showed a woman, aged sixty-two years, who had been complaining of dysphagia for four months and increasing pain in the neck. She had not suffered from dyspnœa, and there had been no alteration in her voice. In three months she had lost seven pounds in weight. On April 8, 1953, direct laryngoscopic examination and biopsy performed by Dr. V. Bear showed a squamous-cell carcinoma one inch in diameter in the post-cricoid region and extending down the left side of the œsophagus. There were no palpable cervical lymph glands. On May 12, 1953, the left lobe of the thyroid gland, the left infrahyoid muscles and the lower part of the left sterno-mastoid muscle were removed. The pharynx was opened, and then the epithelioma, which was not infiltrating the cricoid cartilage, was removed together with a surrounding cuff of pharyngeal and œsophageal wall. No enlarged cervical lymph glands were seen. The pharyngeal and œsophageal openings, between which was a three-inch gap, were connected with a partly formed skin tube, as in the Wookey technique, and a split-skin graft was applied to the defect on the right side of the neck. A tracheotomy tube was inserted into the trachea, and a feeding tube was inserted through the nose out into the neck and down the œsophagus. After two days feeding was commenced through the intranasal tube. On the following day the tracheotomy tube was removed. The tracheotomy wound had closed by May 28. On June 16 the closure of the skin tube was completed, the pharynx being thus reconstituted. After a further ten days (on June 26) the intranasal tube was removed, and swallowing commenced. For the first few days there was some difficulty in swallowing fluids, but this gradually settled down, and the patient was discharged to her home on July 5 with the wound healed. Since then she had complained of slight dysphagia for large drinks, which she had been told to avoid. Otherwise, she was very well. Dr. L. R. Finlay-Jones (pathologist) reported that the excised specimen was a piece of tissue measuring 6·0 by 4·5 by 1·1 centimetres. One surface was covered with wrinkled mucosa, and there was a central ulcer measuring 3·0 by 2·0 centimetres and 0·8 centimetre in maximum depth. Microscopic examination showed that the growth was a squamous carcinoma of intermediate differentiation which appeared to have been completely excised.

Partial Pelvic Clearance for Post-Irradiation Recto-Vaginal Fistula.

Dr. Wilson next showed a woman, aged forty-four years, who gave a history of undergoing an operation in December, 1951, for a pelvic abscess. Then on February 16, 1952, a posterior colpotomy had been performed. On May 10, 1952, the diagnosis was made of carcinoma of the cervix, and in August, 1952, radium treatment was given, as the growth was said to be inoperable. About March 18, 1953, a recto-vaginal fistula developed, and she began to pass fæces *per vaginam*. A left inguinal colostomy constructed on March 25, 1953, gave some relief. On June 11, 1953, she came to Sydney and was admitted to hospital. She then stated that for eighteen months she had suffered from increasing pains in the abdomen, back and perineum requiring frequent doses of morphine. She had lost three stone in weight during that time, but had regained six pounds after the colostomy. Her general condition was then very poor. The recto-vaginal fistula was one inch in diameter with considerable surrounding induration in the pelvis. The edges on the rectal side were fungating, but biopsy of this edge showed that the rectal mucosa was ulcerated and actively inflamed. No evidence of carcinoma was found. An excretion pyelogram was normal. Her hæmoglobin value was 14·7 grammes *per centum*, and her leucocyte count was 8000 per cubic millimetre. On June 16, 1953, a partial pelvic clearance was performed. There was no sign of metastases. The bladder and ureters were not involved. The pelvic cavity was drained by tube through the vagina. The pathologist gave the following report: "The specimen consisted of anal canal, rectum and portion of the sigmoid colon 24·0 cm. long, the recto-vaginal septum, the posterior wall of the vagina, the cervix uteri, and the body of the uterus

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(7·0 × 3·5 × 3·5 cm.). In the posterior fornix of the vagina there was a recto-vaginal fistulous opening 2·0 cm. in diameter. At the junction of the vaginal and rectal mucosa there was superficial ulceration, but no newgrowth was found. The appearance of the sigmoid colon in the upper end of the specimen was consistent with a colostomy. Microscopic examination: the recto-vaginal fistula is lined with actively inflamed scar and granulation tissue. There is no evidence of carcinoma." Following the operation she developed retention of urine and hæmaturia. Cystoscopy by Dr. K. Kirkland showed considerable hyperæmia of mucosa, but no ulceration or other lesion. On August 28, 1953, she was discharged from hospital with less than two ounces of residual urine. Granulation tissue at the top of the vagina was not yet covered with epithelium, but she had gained one stone in weight since the operation; the colostomy was functioning satisfactorily, and there was no pain.

Colonic Resection for Diverticulitis.

Dr. Wilson's third patient, a woman, aged sixty-three years, had suffered from diverticulitis for twenty years. During that time she had had many recurrent attacks of upper abdominal pain, vomiting and diarrhœa. For the past two years the pain and diarrhœa had been more severe, and she had also complained of backache and of the passage of excess mucus *per rectum*. Sigmoidoscopy showed no abnormality to a level of 15 centimetres, but further passage was impossible because of spasm. On June 4, 1953, Dr. Langdon gave the following report on a barium enema examination: "The enema flowed back to the caecum without obstruction; the bowel was normally haustrated and no 'filling defects' were observed, but numerous diverticula, some very large, were present mainly in the sigmoid colon but involving the whole bowel, including the caecum." On July 21, 1953, and after four days' preparation (phthalyl sulphathiazole, three grammes, and streptomycin, 0·5 gramme thrice daily) a left hemicolectomy with end-to-end anastomosis of the hepatic flexure to the upper end of the rectum was performed. Several diverticula in the lower portion of the sigmoid were very inflamed. Only a few diverticula were present in the caecum and ascending colon, and those were not inflamed. No diverticulum was seen in the rectum. Convalescence was uneventful except for an acute anal fissure, and on August 20, 1953, the patient went to a convalescent home. There was then no abdominal pain, vomiting, diarrhœa or backache, and the anal fissure was healed. The pathologist (Dr. L. R. Finlay-Jones) gave the following report on the excised specimen: "A segment of colon measuring 38·0 cm. was received. Numerous diverticula were present along the length of the specimen. The bowel also showed melanosis coli. Microscopic examination: sections show mucosal diverticula extending through the muscle coat of the colon. Chronic inflammatory changes are present in the adjacent bowel wall."

Early Carcinoma of the Colon.

Dr. Wilson then showed a married woman, aged forty-five years, who had noticed occasional bleeding *per rectum* for some months. Her general condition was good, and examination showed no abnormality in her abdomen. Sigmoidoscopy to a level of 18 centimetres also showed no abnormality. There was no blood or mucus in the lumen, the mucosa appeared normal, and no polypus was seen. A barium enema examination by Dr. H. M. Cutler on March 25, 1953, revealed a filling defect about one centimetre in diameter in the proximal part of the sigmoid colon. On April 21, 1953, a laparotomy and colotomy were performed. A polypus one centimetre in diameter with a thin stalk was removed from the sigmoid colon. No metastases were detected in the liver, peritoneum, lymph glands *et cetera*. The pathologist reported that this was a pedunculated polypus measuring 1·0 by 0·8 by 0·7 centimetre, and that on microscopic examination it was found to be a papilloma, parts of which had undergone malignant change of an average grade. Malignant infiltration extended into the stalk of the polypus, but did not reach the surrounding bowel wall. After preparation with phthalyl sulphathiazole *et cetera*, resection of nine inches of the sigmoid colon with the corresponding wedge of mesentery, lymphatics and lymph glands was performed on May 7, 1953. An end-to-end anastomosis was used to restore continuity of the bowel. The excised specimen was 15·0 centimetres long, and situated 4·5 centimetres from one end at the site of the excision of the papilloma there was an ill-defined area of superficial ulceration of the mucosa measuring 0·7 by 0·3 centimetre. Microscopic examination showed that there was a little inflamed granulation tissue in the mucosa at the site of the previous operation. Inflammatory changes were present in the nearby peri-colonic adipose tissue. The five regional lymph glands showed no special changes. There was no evidence of carcinoma. Within a month of the operation she had two attacks of abdominal colic, for which no cause could be found, but since then she had remained well, and her bowels had been regular in action.

Restorative Resection of the Rectum for Localized Diverticulitis.

Dr. Wilson's last patient, a woman, aged seventy-six years, had complained of severe pains in the left iliac fossa and increasing constipation for two years. Her general condition was good, and there was a tender mass palpable in the pouch of Douglas. A sigmoidoscope would not pass beyond the level of 15 centimetres because of spasm. Barium enema examination on March 9, 1953, showed a localized filling defect in the recto-sigmoid region. The mucosa appeared to be intact. After preparation with enemata and with phthalyl sulphathiazole (four grammes thrice daily for five days) and streptomycin (one gramme given orally twice daily for five days) an anterior (intraabdominal) resection of the upper half of the rectum and rectosigmoid was performed. A small abscess was present between adherent loops of bowel. Continuity of the bowel was restored by means of an end-to-end anastomosis with an outer interrupted layer of cotton sutures and a mucosal and muscular layer of continuous catgut. The pelvic peritoneum was realigned so that the suture line was extraperitoneal. A drain tube was inserted down to the anastomosis and was removed after six days. On July 25, 1953, the patient was discharged to her home with the wound healed; she was free of pain and her bowels were regular in action. The site of the anastomosis was just palpable with the tip of the finger.

Gastric Ulcer and Gall-Stones.

DR. J. M. YEATES showed a woman, aged forty-four years, who had been investigated at the out-patient department because of attacks of pain in the right upper part of the abdomen for the previous two years. The pain tended to radiate round to the right scapular region. She disliked fatty foods and suffered from flatulence. The pain was relieved by taking alkaline powders. X-ray examination of the gall-bladder showed that at least two fairly large stones were present. At that stage the investigation ceased, and the patient was admitted to hospital for cholecystectomy in December, 1952. At operation, routine examination of the abdominal viscera revealed a large indurated ulcer in the pyloric region of the stomach and enlargement of the local lymph nodes. Two large stones were palpable in the gall-bladder, which was not notably diseased. After consideration of the site, size and evident chronicity of the ulcer, it was decided that it should receive priority over the gall-bladder, and gastrectomy was performed. The resection was not carried very high, and the continuity of the bowel was restored by end-to-end anastomosis (Billroth I type). Although the patient's condition was very good at that stage, it was considered that removal of the gall-bladder might not be prudent. The viscus was opened, the stones were removed, and complete suture without drainage was performed.

Dr. Yeates said that this simple procedure took only a few minutes, and the entire operation was concluded in two hours. The patient's convalescence was particularly tranquil, with absence of the gastric stasis that one had come to expect in the Billroth I type of anastomosis. She was discharged from hospital on the eleventh day. In the nine months since operation she had been free from all symptoms. Despite a very good appetite she had not gained much weight, but she stated that she was always a small woman. The case showed that the investigation of the patient with dyspepsia should ideally follow a set plan. The discovery of gall-stones was commonly hailed with satisfaction and the gall-bladder promptly removed. It was unfortunate when some more serious condition was overlooked and the patient's symptoms persisted after cholecystectomy.

Repeated Perforation of Ulcer.

Dr. Yeates then showed a man, aged forty-nine years, who had been admitted to hospital with a perforated duodenal ulcer on April 18, 1953. The patient had suffered a similar catastrophe only nine months previously. He admitted quite frankly that he was addicted to alcohol and had great difficulty in abstaining even for short periods. He had no fixed abode. He was clearly a patient who was not likely to thrive on medical treatment for any prolonged

period, and it was decided that gastrectomy offered him the best chance. For the next month he was given a diet of high-protein, high-vitamin content and was considered fit for operation on May 25. It was gratifying to find that his ulcer was so nearly healed that gastro-duodenal resection was simplified, and anastomosis by the Billroth I method possible. Despite such a strong history of alcoholism his convalescence was slow but uneventful, and he was discharged from hospital on June 10. Since operation he had been free from pain and had actually gained some weight. He had not, however, been cured of his addiction to alcohol.

Persistent Duodenal Ulcer.

Dr. Yeates then showed a man, aged forty-two years, who had suffered from epigastric pain about one hour after meals for nearly twenty years. The pain was relieved by food, by alkaline powders and by vomiting. It tended to be much worse during periods of worry. Recently the pain had become more persistent and more severe. It now tended to radiate not only round both sides to the back, but even up into the neck. The patient had been treated for ulcer for many years, but admitted that he did not stick to his diet. By occupation he was a Sydney taxi-driver and tended to snatch meals at irregular hours and eat them quickly. When first examined on April 21, 1953, he looked thin and gaunt. His face was lined, and his pain was very severe and practically constant. An X-ray examination a few days later showed marked deformity of the duodenal cap, the result of long-standing ulceration. He was admitted to Sydney Hospital on May 8, 1953. For the first week he was given routine medical treatment as for an acute ulcer. His pain disappeared on May 19, and for the next few weeks he was given a diet of high-protein, high-vitamin content. He began to gain a few pounds in weight and to feel well. Gastrectomy was then performed on June 1. As was expected, the ulcer was now small and free from signs of acute inflammation, so that little difficulty was found in dissecting the duodenum. There was not enough duodenum to allow the Billroth I type of operation, and the anastomosis was made by bringing up a loop of jejunum according to the technique described by Tanner. This included the use of twin clamps. The next day there was some fairly bright red blood in the gastric aspirate, and the patient's pulse rate had risen to 103 per minute. Ten mils of warm saline were run down the Ryle's tube, and the bleeding appeared to stop soon afterwards. From then on progress was good and the patient was discharged from hospital on the twelfth day. For the next few weeks he was very well, but occasionally regurgitated small amounts of "bile". This rather annoying symptom persisted for nearly two months. At the present moment his appetite was very good, he was able to enjoy all kinds of food, and he was totally free of pain for the first time in many years. Despite a very high caloric diet his gain in weight was slow.

Post-Cholecystectomy Syndrome.

The next patient shown by Dr. Yeates was a tram conductress, aged thirty-three years, who for two years had suffered from severe pain in the epigastric region usually about thirty minutes after meals. The pain was severe enough to make her "double up" and sometimes would last nearly all day. It was relieved by alkaline powders. It was sometimes in the right iliac fossa, but never under the right ribs. She also suffered from flatulence and avoided fatty foods. Jaundice had never been observed. An X-ray examination of the gall-bladder showed that a large stone was present. Operation was performed on December 9, 1952. Routine inspection revealed no abnormalities other than in the gall-bladder, which was thickened and contained one large cholesterol stone. The common bile duct appeared normal in every way. Cholecystectomy was performed, and the patient was discharged on the eleventh day. After operation she was free from symptoms for about three months and was well satisfied. Then in March, 1953, she suddenly developed a pain practically the same as the one she knew so well before operation. She felt that her "gall-bladder had come back again". There had been no jaundice and no rigors. The pain occurred only about once a week for two months. Then it was felt nearly every day and lasted up to two hours. It was apparently griping in character and was not related to food, and there was no associated vomiting. The patient looked well and was an excellent colour, and her abdomen appeared to be normal. In August an X-ray examination of the stomach and duodenum showed no abnormality. In the last few months the attacks were becoming less constant, and at the present time they had almost disappeared.

In discussing this patient Dr. Yeates said that there were many causes for pain of this nature, but that residual stone in the common bile duct, missed peptic ulcer and pancreatitis were probably the most common. There was also the interesting condition of new stones formed in the cystic duct stump. The three months' complete freedom from pain after operation had suggested the last-mentioned possibility. The excellent state of health of the patient had dictated a policy of expectant treatment, and it now seemed almost certain that the pain was finally waning. Debris in the common duct, short of actual stone-formation, might well have been the cause of the trouble.

Trauma to Mesentery.

The last patient shown by Dr. Yeates was a well-built man, aged forty-two years, who had run to catch a tram in King Street, Sydney, at 11.45 p.m. on March 17, 1953. He struck a standard which was guarding street excavations and was at once aware of a severe pain in the lower part of the abdomen. It was over one hour before he could persuade his friends that he was injured. On arrival at the casualty department of Sydney Hospital at 1 a.m. he was pale and sweating, and his blood pressure was 85 millimetres of mercury, systolic, and 65 millimetres, diastolic. The lower part of his abdomen was tender and somewhat rigid. There was also a fullness in the suprapubic region, which appeared to be increasing in size. There was no evidence of alcohol. A diagnosis of ruptured viscus (probably bladder) was made, and blood transfusions were commenced. There was some difficulty in getting the blood pressure above 100 millimetres of mercury, systolic. By 3.40 a.m. he was regarded as fit for operation. Under general anæsthesia ("Pentothal", "Tubarine", nitrous oxide, oxygen and ether) a catheter was passed. About 10 ounces of urine quite free from blood were withdrawn, showing that the bladder was intact. The abdomen was then opened and was found to contain many pints of blood. It soon became apparent that the bleeding was still active, but the exact source was not easy to find. After mopping up most of the blood two large holes were found in the mesentery of the terminal part of the ileum, and blood was found pouring from several torn ileal arteries The bleeding was quickly controlled, and the whole area was inspected carefully. It was seen that parts of the terminal portion of the ileum were badly bruised and that a large hæmatoma was present behind the peritoneum extending down to behind the caecum. Eighty centimetres of the distal part of the small bowel were resected, the line of section being almost at the ileo-caecal junction. Because of the large hæmatoma in this region the small distal stump of ileum was closed, and the anastomosis was made into the anterior surface of the caecum. During the operation 1500 mils of blood and 1500 mils of serum were required, and in the next twelve hours a further 1500 mils of blood were given. For the next four days the patient was maintained on intravenous fluid therapy. Towards the end of the week his bowels began to work very freely—sometimes ten motions daily. After numerous minor complications he was fit for discharge from hospital on the twenty-second day. At the follow-up clinic during the next few months he was seen to be gradually returning to normal, but his bowels were still too free. At the present time he was quite well except for slight frequency of bowel actions. He was satisfied that within a few months that symptom would have gone.

(To be continued.)

Medical Practice.

THE FELLOWSHIP OF CHRISTIAN HEALING.

A MEETING of the Fellowship of Christian Healing was held on November 17, 1953, at the Chapter House, Saint Paul's Cathedral, Melbourne, The Right Reverend Donald Baker, Bishop, in the chair. Dr. Leonard Ball, President of the Victorian Branch of the British Medical Association, was present on the platform with the chairman. The attendance was approximately 300, comprising about 50 medical practitioners, 100 clergy and 150 laity.

Cooperation Between Doctor and Chaplain in Hospital.

DR. ROBERT SOUTHBY spoke on the scope for greater cooperation between the doctor and the chaplain in the

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hospital. He began by asking what were the difficulties between the doctor and the chaplain in their work in the hospital He thought that if these could be set out they would be in a position to offer constructive suggestions for overcoming them. In order to obtain some information in this direction Dr. Southby had discussed the problem with several of his friends in both professions and the facts were as follows.

The Chaplain.

The doctor calls him only when he feels all other measures have failed.

The doctor relies entirely on physical measures and scientific methods.

The doctor does not clash with the chaplain—in fact he hardly ever sees him in the wards, and rarely meets him at all.

The doctor does not or will not try to understand the elementary principles of Christian or spiritual healing.

The Doctor.

The chaplain wants access to the medical records of the patient.

There is difficulty in dealing with chaplains of certain sects.

The chaplain shows a lack of tact in speaking to the patient concerning his illness.

The chaplain who regards himself as an amateur psychologist can be a real menace, especially if working alone.

Protestants tend to appoint older men who are less active and retired from parish work, whereas Roman Catholics always appoint younger men.

The patient does not want a "dodderer" who pays a pleasant social call.

These would be discussed in more detail later.

In regard first to the close association which had existed from the earliest days of Christianity between the church and medicine in the care of the sick and the sorrowing, Dr. Southby said that this work had been undertaken in answer to the Lord's injunction that they should go forth into all the world, preach the gospel and heal the sick. In implementing this exhortation hospitals had been founded and had grown and increased with the inspiration of His example. Originally there had been a very close association between the spiritual factor and the physical and mental aspects of the patient's illness. The commemoration of the Patron Saint of the healing profession by the Church on Saint Luke's Day (October 18) recalled with thankfulness that this physician was called to be "an evangelist and physician of the soul" and offered a prayer that "by the wholesome medicine of the doctrine delivered by him, all the diseases of our souls may be healed". Saint Luke's Gospel had been referred to as the most beautiful book known—a book full of joy. It was full of the joy of the lives that seemed failures, hopeless failures, transformed to be happy and successful beyond all belief. And this miracle had been effected by love—forgiving, understanding love, such as the world had never witnessed. The world's sick soul could be cured only by the medicine of the Master Physician, and the "active principle" of this medicine was derived from the historic fact of the resurrection of Jesus Christ.

The healing of the sick had been part of the normal ministry of the Apostolic Church. Through the ministry of the word and the sacraments, sickness and disease had been healed, devils were cast out, and man was made whole in body, mind and soul. "Is any among you sick? let him call for the elders of the church, and let them pray over him, anointing him with oil in the name of the Lord" (St. James V : 14). In ministering to the sick the clergy did possess a gift from God which He desired to bestow upon His children.

There was an urgent need for the closest cooperation between clergy and doctors since spiritual and physical treatment were complementary and equally necessary for true well-being. The ministry of the Church was a ministry for the whole man—it was therefore of the utmost importance that the clergy should equip themselves for a fuller understanding of the intimate connexion between moral and spiritual disorders and mental and physical ills. There should be an equal partnership between the clergy and the doctors.

To promote and maintain the well-being of the patient, the doctor and the chaplain had a task with much in common, and the doctor aimed chiefly at curing the patient's disease, but the chaplain's interest went deeper and further as he was concerned mainly with the spiritual well-being. Nevertheless the work of each must be complementary to that of the other. The two professions should work in as close cooperation as the gears of a beautiful piece of modern machinery were enmeshed.

It was a mistake to look upon divine healing as simply another form of therapeutics to be brought into the picture only when other methods had failed. It was the soul of all healing.

God was willing and able to help men in their work for Him and for one another. The chaplain should bring with him the hopeful rays of life, and not the ominous clouds of impending death. It was his duty to help the patient to realize that the hospital was not so much a place of disease as a place where great healing forces were at work, and so restore his confidence.

When one man believed another caught the flame, which if it burned brightly converted a hospital into a temple of healing. It had what was described as atmosphere. Whether or not a hospital possessed the atmosphere depended entirely upon the personnel. This was strikingly evident in those hospitals which were in the charge of various religious organizations, and particularly those whose permanent staff were women who were devoting their lives to this work as a divine calling. For those who worked in Melbourne this atmosphere was particularly felt as soon as one entered the building at such hospitals. In like manner this was freely commented upon by visitors to a children's hospital—there must of necessity be some special appeal to the entire staff, not only medical, but all associated with the hospital in any capacity.

The two professions must see to it that this atmosphere, which was a thing of the spirit, was preserved at all costs. And this could be only in so far as they suffused their work with the spirit of faith, hope and love—the love that cast out fear and that was stronger than death.

Unfortunately with the advent of new discoveries by scientists and research workers there had developed the impression in many quarters that these measures alone were sufficient to cope with all the problems of sickness, whether medical or surgical. This drift had been realized by many of the medical profession for some years past, but only comparatively recently had there been evidence of a definite outward indication on the part of the profession as a whole of a return to a true appreciation of the spiritual factor in its real light.

In this respect Dr. Southby referred to the institution of the Cathedral services for the medical profession for the first time in Melbourne in 1950 which had now become an annual observance. Then early in 1953 there had been the recognition by the Council of the Victorian Branch of the British Medical Association of the Fellowship of Christian Healing and acceptance of the principles of this movement on lines analogous with that of the parent body in England and the Churches' Council of Healing in 1947. With this decision was the appointment of a panel of doctors to help and advise.

In conclusion, Dr. Southby made some suggestions which, he said, might serve to improve the scope for greater cooperation between doctors and clergy in hospitals as follows:

1. Special training is essential for chaplaincy work, which is in effect a speciality in your profession, just as much as there are specialist doctors. This must be at post-graduate level, and after service for a specified time in parish work, for example, five years. There should be a school of clinical training for providing this special instruction: (*a*) for general hospitals, (*b*) for mental hospitals. The chaplain should be a young man, specially chosen on account of his personality as being suitable to start on such a post-graduate course.

2. The chaplain should be a full member of the hospital staff. As such he would become versed in the principles of ethical conduct in medical practice. He would also then have privileges as to access to medical records and the doctor could acquaint him with the necessary information regarding any particular patient. He should be a member of the team and work with the unit whether it be medical or surgical. He should be paid an adequate salary comparable with that of other officers of the hospital of equivalent status. In the large teaching hospitals he should reside in the hospital.

3. Finance was essential in order to establish such a training school and to maintain an efficient chaplaincy service. This would of necessity be of considerable proportions and

could only be supplied by: generous endowment by private individuals or large organizations; approach to the Hospitals and Charities Commission; direct approach for financial aid from governments, Federal and State.

4. Regular interchange of ideas should take place between members of the two professions—clergy and doctors. (*a*) During training as students—of necessity this must be only elementary, nevertheless occasional meetings or addresses by seniors would be valuable. (*b*) During the early graduate phase especially, a meeting of young clergy in the parish with young doctors in general practice. (*c*) During the later post-graduate period, meetings for an exchange of ideas on matters of mutual interest would be invaluable.

If the general principles of such proposals could be implemented it was felt that the competence so acquired would inspire such mutual confidence that the cooperation between members of the two professions would undoubtedly be assured.

The Will of God Regarding Health.

The Anglican Bishop of Adelaide (THE RIGHT REVEREND B. P. ROBIN, said that if they were to think aright about the Church's ministry of healing, a clear view was required of the will of God in regard to health. If physical death and the disorder that preceded it were considered to be planned and purposed by the mind and will of God, all who sought to remove or cure or delay them were fighting against God. If, on the other hand, it was believed that God's will for man was life and health, such questions arose as "Why does God allow these evils?" and "Why should the innocent be allowed to suffer?". It was evidently necessary to distinguish between the absolute and the conditional will of God, or between the active and the permissive, almost the positive and negative will of God.

Considering the matter of the absolute or positive will of God, Bishop Robin referred to the creation stories in Genesis. He said that the first creation story ended with the words "God saw everything that he had made, and, behold, it was very good"; yet pain, death and evil were terrible realities. The second creation story showed God bestowing on man three gifts—life, freedom and fellowship—and those were of significance in the present discussion.

God gave man life of body, mind and spirit—not death, not the crippled, shackled, distorted life of disease, disorder and delay; those had no place in the plan. Man as God meant him to be was seen in Jesus Christ, the second Adam —untrammelled, uncrippled, like the first Adam, by an evil heritage, but refusing, unlike the first Adam, the specious road of independence and separation from God. Consequently he had the dominion which God designed for him over his whole natural and human environment.

The second gift was freedom; but in giving this, God bound Himself. The answer to the question, "Why does God allow this, or not stop that?", was that He had made men really free, and whatever the consequence to Him or them He stood by his contract. He might not and would not use His power to interfere, for that would be to destroy the very human nature He created and make men puppets. There was the Kingdom of God, the *Civitas Dei*, the only and real democracy—God and man in full partnership and loving and intelligent cooperation. If, however, man disowned the sovereignty of God and disclaimed his citizenship, he stepped across the frontier. That was what he had done, and he had himself to blame that death was thenceforth his lot. Moreover, he entered a realm of chaos where without apparent rhyme or reason or discrimination, disaster might break on him at any moment.

The further question might be asked: "Why should this happen to me?" or "Why should the innocent suffer?". The answer was to be found in the third gift—fellowship—a wonderful gift, for it was Hell to be alone. In God's gift and plan the unity between His children was so close that they could always look each other in the eyes in perfect fellowship. However, if fellowship was given another name —solidarity—it was seen to have not only its glories but its terrors. A man was "bound up in the bundle of life" with all his fellows. If all were partakers of the good, all were victims of the evil that others had done or might do.

To sum up, Bishop Robin said that the absolute will of God for man was life at the full in a perfectly integrated spirit, mind and body; weakness, disease, decay, old age, death and corruption were contradictions, insults, enemies of Him and His purpose. His great gifts of freedom and fellowship were designed to bring the first gift of life to its fullest glory and completion. However, He was a God also of order and of law. If men put themselves outside the law, the consequences followed of which full and loving warning had been given—and all were involved. God did not send those consequences upon man, still less on a particular man; each such consequence represented the exact working out of effects from causes.

Nevertheless, God was above all a God of love. So when the Gospel appeared, it was a Gospel of deliverance. He sent the Prince of Life to cope with disease and death, the weapons of His enemy. Wherever they confronted Him, He destroyed them; and all who battled with them—doctors, nurses or priests—were allies and ministers of the Prince of Life. And when they were not destroyed, He captured them and used them for His own purposes against the enemy.

It should, however, be noted that Jesus Christ never went out of His way to heal. Sickness and death were the poison-flowers. He was concerned fundamentally with the poison's root. He was travelling from Eternity to Calvary to meet and grapple with the Enemy himself; on the way, and by the way, He healed. So should His Church be doing; but her real quarry was the same as His, and her real work was the deliverance from their bondage of the souls of men, so that in the fullness of time their whole being, body, mind and spirit, might come, by His mercy, to glorify God and enjoy Him for ever.

The Patient After Discharge from Hospital.

DR. BRUCE H. PETERSON (Sydney) said that as he worked in a mental hospital, he might be tempted to stress the psychiatric aspects, and, specifically, the problems awaiting the patient who was being discharged from a mental hospital. He hoped he would be forgiven if he yielded to this temptation. Also, as the in-patient of any big public hospital, general or mental, often became an out-patient on his discharge, it would be relevant to discuss ways of cooperating to help the out-patient too.

The subject as a whole had two aspects: firstly its inspirational and theoretical basis, and secondly the opportunities for positive, practical action.

Why had God put it into the hearts of some clergymen and doctors in these days to get together in their efforts to help sick people? Surely it was because man did not live by bread alone; he was not just a complicated mechanism which could be understood solely by scientific methods. He was made in the image of God, who had breathed into him the breath of life; he had a spiritual nature capable of knowing God and His eternal truth. Now the doctor specialized, as it were, in the scientific approach to the understanding of man, bringing to him as much of the resources of modern physiological and psychological knowledge and technique as he was capable of bringing; the clergyman, on the other hand, specialized in the things of the spirit, and brought all the resources of the Christian faith. Once upon a time, the body of human knowledge being relatively small, the doctor had also been the priest, and the priest the doctor. There was a sense in which this could still be true; but in recent centuries knowledge had increased so rapidly and extensively that it was necessary to specialize (even within specialties), no single human brain being capable of mastering the whole field of knowledge about man, body, mind and spirit. This was the process of differentiation, of which Phyllis Garlick wrote; and it made all the more necessary a new synthesis, an approach to that unity of body, mind and spirit which doctors called "the whole man". The realization of the need to treat the whole man and not just the disease of his body had given rise to yet another specialty within the medical profession, that of psychosomatic medicine, though, of course, through the ages there had always been some doctors who used the psychosomatic approach in all aspects of their work. But if doctors were to treat the whole man, they had to treat not only his soma and psyche, but also his spirit, the "pneuma" of the New Testament. Morever, if they were going to try with God's help to treat the spirit, they should not neglect the soma and the psyche. Thus it was that in these days of increasing differentiation and specialization the Christian doctor felt the need of the help of the clergyman in his treatment of the sick, and the clergyman the help of the doctor.

They believed too that all healing came from God, that His infinite power could work within His responsive creation to remake the whole human personality, and that by cooperating with God through prayer and faith, hard work and skill, clergymen and doctors became the humble instruments of God's life-giving, renewing, healing power.

How could these ideas find practical expression? So far, they had been demonstrated in action most fully outside Australia—on the foreign mission field. There, medical missions were writing a glorious chapter in the history of

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the ministry of healing, and there was much that could be learned from them. But at home there was the beginning of an awakening to opportunities by some individual clergymen and doctors, by chaplains visiting general and mental hospitals, by church marriage guidance centres with medical panels and by bodies such as the Guild of Health and the Victorian Fellowship of Christian Healing. Perhaps some day in the not-too-distant future the time might be ripe for the formation in Australia of a body like the Churches' Council of Healing in Great Britain. Cooperation between clergymen and doctors on an Australia-wide basis was already being fostered by the Australian Council for the World Council of Churches, which had recently organized a conference for medical practitioners at Menangle, New South Wales; this Dr. Peterson had been privileged to attend. Doctors from several Australian States and some clergymen had discussed the subject "The Christian in Medical Practice". It was agreed that both doctors and clergymen should receive more adequate undergraduate and post-graduate training in normal and abnormal psychology, and in family and personal counselling; that doctors should regard prayer for their patients as part of the total work of healing; that doctors should seek opportunities of inviting clergymen into their homes for fraternal conference on these matters; and that the next conference for medical practitioners to be called by the Australian Council for the World Council of Churches should be for doctors and clergymen in roughly equal proportions, with some sessions held separately and some conjointly.

Dr. Peterson then dealt with practical ways of helping the patient discharged from hospital. First he wished to pay a tribute to the great work clergymen were already doing in this connexion. On numerous occasions it had been a great help to him and to his patient to be able to refer him to his clergyman for assistance with both spiritual and material problems. Most clergymen were so busy already that one wondered whether it would be possible for them to do more in the ministry of healing. Yet the ministry of healing was assuming higher priority now than it did fifty years before.

In the particular aspect of that ministry under consideration, as in others, the clergyman could become a member of a team which already included the doctor and the almoner or social worker, all trying to help the patient to regain the maximum degree of health. The doctor might order the patient to a convalescent home for a few weeks, or send him home and refer him to his own local doctor or to the hospital out-patient department if follow-up seemed necessary; and he would probably ask the hospital almoner to help in various ways, such as arranging financial assistance or domestic help, or finding a more suitable job. As there were not enough social workers to go round, the clergyman sometimes found himself in the position of having to arrange material help for the patient, and indeed he should be familiar with the various forms of social service assistance provided by both the Government and voluntary bodies such as the church. Very useful in this respect was a Directory of Social Service Agencies published by the Council of Social Service in Sydney, and Dr. Peterson presumed that a similar publication existed for Melbourne. A patient given practical evidence of Christian charity by the clergyman in this way might be more receptive to the Christian gospel. This sort of work was important; nevertheless they should all guard against the clergyman becoming a glorified social worker. The essence of teamwork was that each member of the team had his own specialized contribution to make. The clergyman specialized in spiritual things. If he allowed himself to become too cluttered up with arranging material help (which could often be delegated to others), he might be hard put to it to find time to administer God's means of grace, which after all was his prime concern.

Several different types of cases occurred. There would be persons convalescing successfully from an acute illness, and others suffering from chronic illness to whom, medically speaking, they could offer relief rather than cure; there would be medical cases and surgical cases, physical illnesses and mental illnesses, in Christians and non-Christians. There would be some who, while in hospital, appeared to recover, wholly or partly because of prayer; others whom prayer did not seem to help. It was obvious that many different kinds of situation would arise. Dr. Peterson, in conclusion, considered certain specific hypothetical cases, and ways in which the clergyman, as a member of the therapeutic team, could help.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

INDIRECT ADVERTISEMENT.[1]

[*The Australian Medical Journal*, May, 1868.]

In a Woods Point newspaper, appearing twice a week, a medical man practising there has been abused in every issue save ten during twenty-eight months. He has thus formed the subject of thirty-five leading articles, one hundred and fifty paragraphs, thirty-five letters, and twenty ballads. If the mere printing of these ballads had had to be paid for it would have cost £400. The result had been to thoroughly advertise the doctor and so greatly increase his practice.

Correspondence.

HEART DISEASE IN INDUSTRY.

SIR: I was interested in Dr. F. A. E. Lawes's article in THE MEDICAL JOURNAL OF AUSTRALIA, February 13, 1954, and particularly in the medico-legal opinions expressed therein.

Dr. Lawes expressed the opinion that the death of a man from cardiac causes in 1951 was unrelated to a compensatable cardiac injury suffered in 1943. What type of cardiac injury could this man have suffered in 1943 that did not leave some permanent cardiac damage, and would not this damage have accelerated his death?

The opinion with regard to the miner with pneumoconiosis is also of interest, and seems to rest on an X-ray report of "slight non-disabling pneumokoniosis". How can a radiologist say that a pneumoconiosis is non-disabling? Also, could not this miner's emphysema have been due to his pneumoconiosis?

In my opinion, on the facts given, both these men were entitled to compensation.

Yours, etc.,

KEITH BOTTOMLEY.

111 Collins Street,
Melbourne,
March 1, 1954.

THE UMBILICUS OF THE INFANT.

SIR: Owing to my distance from Australia and my busyness I have just read the article by Dr. Clair Isbister on "The Umbilicus of the Infant" published in your journal on October 10, 1953. I thought you might be interested in the method used here to deal with the umbilical cord, as it has proved completely satisfactory; and having got over my initial fear of it, I have no hesitation in saying that it is superior to any of the methods mentioned by Dr. Isbister. At birth the cord is clamped with a pair of Kocher's forceps as close to the umbilicus as possible and then cut a half-inch or so distal to the clamp. About two hours later the cord is cut off with a blunt scalpel level with the Kocher's forceps. It is then dabbed with tincture of iodine and the Kocher's are removed. The stump is then dusted with "Pulvis Dermatol", and a more or less sterile dry gauze swab is applied and an abdominal binder. The dressing is inspected after half an hour and again at such times as the baby has its napkin changed. The cord stump, or more exactly the umbilicus, is dusted again with powder after the daily bath or if there is any slight oozing of blood. The babies are discharged with their mothers on the fourth day after delivery with a clean healed umbilicus. We average a thousand births a year, and in only about half a dozen cases has there been any bleeding necessitating a suture, tie or Michel clip.

[1] From the original in the Mitchell Library, Sydney.

The only exception to this method is in the case of a known Rh-negative mother, in which case the cord is left long before clamping, in case of the necessity of an exchange transfusion.

It is perfectly safe to say that at least no severe cases of umbilical infection have occurred in the past two years (the time during which I have been here), as the babies would have been seen by our pædiatrician, as we are the only hospital in the district. In parenthesis I would like to mention an interesting contrast from our babies at home. By the fourth day after birth the great majority of our babies are gaining weight. If they are not gaining they are not discharged from hospital.

This note is sent with the kind permission of our Superintendent, Dr. Lehmann.

Yours, etc.,

DORIS A. SELBY,
Head of the Department of Obstetrics and Gynæcology.

Hadassah Hospital,
Beersheba,
Israel.
February 23, 1954.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Lecture and Clinical Meeting at Balmoral Naval Hospital.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that Dr. C. E. Winston will give a lecture on "Malignant Conditions of the Skin with Special Reference to Melanomata" on Tuesday, April 13, 1954, at 2 p.m., at the Balmoral Naval Hospital. Clinical cases will be shown after the lecture. All members of the medical profession are invited to attend.

Royal Australasian College of Surgeons.

RUPERT DOWNES MEMORIAL LECTURE.

ALLAN S. WALKER, M.D., F.R.A.C.P., medical historian of "Australia in the War, 1939-45", will deliver the Rupert Downes Memorial Lecture in the Stawell Hall, The Royal Australasian College of Physicians, 145 Macquarie Street, Sydney, on Wednesday, March 31, 1954, at 8.15 p.m. His subject will be: "The Following Wind of History." The meeting is open to all members of the medical profession, and because of the general interest of the subject they are invited to bring their wives.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1950, as duly qualified medical practitioners: Frost, John Norbert, M.B., Ch.B., 1925 (National Univ., Ireland); Kearley, Alan Spence, M.B., B.S., 1951 (Univ. Queensland); Mazel, Dorothy, M.R.C.S. (England), 1935, L.R.C.P. (London), 1935; Owitz, Sidney, M.B., Ch.B., 1948 (Univ. Cape Town); Pearce, Francis Owen Piers, M.R.C.S. (England), 1952, L.R.C.P. (London), 1952; Rea, Desmond Maurice Vincent, M.B., Ch.B., 1951 (Univ. New Zealand); Scragg, Roy Frederick Rhodes, M.B., B.S., 1946 (Univ. Adelaide); Smith, Colin Landon, L.M.S.S.A., M.B., B.S., 1953 (Univ. London).

The following have been registered in accordance with the provisions of Section 17 (1) (c) of the *Medical Practitioners Act*, 1938-1953: Goldstein, Bronislawa; Grunwald, George Bela; De Wilde, Frans Willem; Manass, Viktoria; Mezo, Bela Albert; Petersons, Zigrida; Radziowsky, Nikolay; Van Der Poorten, David; Ziegler, Anna; Baksa, Janis.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED FEBRUARY 20, 1954.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	6(4)	..	..	..	..	..	..	..	6
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	..	..	..	..	1	..	1
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	1(1)	..	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	22(21)	9(8)	..	..	1	..	..	32
Diphtheria	8(4)	..	5(3)	..	4(4)	..	..	..	17
Dysentery (Bacillary)	..	4(4)	..	..	1(1)	1	..	..	6
Encephalitis	..	1	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	1(1)	..	..	..	..	..	..	1
Infective Hepatitis	1(1)	7(3)	..	..	4(3)	..	..	..	12
Lead Poisoning	..	4(3)	..	..	..	..	..	..	4
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	3(3)	..	..	..	3
Meningococcal Infection	2	1(1)	..	1(1)	3(1)	..	..	..	7
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	32(12)	5(2)	3(1)	3(2)	23(20)	..	..	..	66
Puerperal Fever	..	..	1	..	..	..	..	..	1
Rubella	..	13(6)	..	..	11(7)	..	..	..	24
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	5(3)	21(8)	6(1)	3(1)	1(1)	1	..	..	37
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	1	..	..	..	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	55(42)	7(3)	14(5)	12(12)	9(6)	1	2	..	100
Typhoid Fever	2(1)	2(2)	..	1(1)	..	..	..	..	5
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	1(1)	..	..	..	2
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

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The following additional qualifications have been registered: Beveridge, John (M.B., B.S., 1946, Univ. Sydney), M.R.A.C.P., 1953; Conacher, Colin James Ross (M.B., B.S., 1945, Univ. Sydney), M.Ch.Orth., 1952 (Univ. Liverpool), F.R.C.S. (Edinburgh), 1952; Ryan, John Patrick (M.B., B.S., 1940, Univ. Sydney), M.C.R.A., 1952.

QUEENSLAND.

THE following have been registered, pursuant to the provisions of *The Medical Acts*, 1939-1948, as duly qualified medical practitioners: Cashman, John Daniel, M.B., B.S., 1953 (Univ. Sydney); Parle, John Frederick, M.B., B.S., 1953 (Univ. Sydney); Halloran, Audrey, M.B., B.S., 1951 (Univ. Sydney); Facy, Graham Lyle, M.B., B.S., 1954 (Univ. Queensland); Falconer, Hugh James, M.B., B.S., 1954 (Univ. Queensland); Needham, Robert Cust, M.B., B.S., 1954 (Univ. Queensland); Shell, Glenister, M.B., B.S., 1954 (Univ. Queensland); Urquhart, Hugh Alexander, M.B., B.S., 1954 (Univ. Queensland); Webster, Joan Valerie, M.B., B.S., 1954 (Univ. Queensland).

The following additional qualifications have been registered: Watson, Kenneth John Maurice, M.Ch. (Orth.), 1952 (Univ. Liverpool), F.R.C.S. (England), 1953; Best, John William, M.S., 1952 (Univ. Queensland); Minty, Cyril Charles Julius, M.C.R.A., 1953; Mowatt, Keith Stronach, M.C.R.A., 1952; Mead, Kevin William, D.M.R.T., R.C.P. (London), R.C.S. (England), 1953, M.C.R.A., 1953.

Deaths.

THE following deaths have been announced:

ROFE.—Owen Fulton Rofe, on February 13, 1954, at Hobart, Tasmania.

ROWAN.—Christopher Paul Rowan, on March 1, 1954, at Kew, Victoria.

ARMSTRONG.—George Armstrong, on March 3, 1954, at Collector, New South Wales.

Nominations and Elections.

THE undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Reid, John Graham, M.B., B.S., 1953 (Univ. Adelaide), 28 Albermarle Street, West Hindmarsh, South Australia.

Campbell, Ian George, M.B., B.S., 1953 (Univ. Adelaide), 7 Clifton Street, Malvern, South Australia.

Clezy, John Kenneth Albert, M.B., B.S., 1953 (Univ. Adelaide), 305 Greenhill Road, Burnside, South Australia.

Robinson, Michael Alexander, M.B., B.S., 1953 (Univ. Adelaide), 29 Athol Avenue, Blair Athol, South Australia.

Dowie, Donald Alexander, M.B., B.S., 1953 (Univ. Adelaide), "Montcalm", Crafers, South Australia.

Kneebone, John Henry, M.B., B.S., 1953 (Univ. Adelaide), 19 Walkerville Terrace, Gilberton, South Australia.

Harbison, Peter Alan, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952), 230 Cross Road, Unley Park, South Australia.

Smith, John Wasley, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952), 50 Leicester Street, Parkside, South Australia.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Hawke, John Burton, qualified 1953 (Univ. Adelaide); Angus, Barbara Ann, qualified 1953 (Univ. Adelaide); Evans, Robert George, qualified 1953 (Univ. Adelaide); Wicks, Graham Ralph, qualified 1953 (Univ. Adelaide); Bailey, Hubert John, qualified 1953 (Univ. Adelaide); Burns, Clement Aylesbury Colin, qualified 1953 (Univ. Adelaide); Carden, David, M.B., B.S., 1953 (Univ. Adelaide); Markey, Gregory Barton, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952); Cunningham, Mark Lawrence, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952).

Diary for the Month.

MARCH 23.—New South Wales Branch, B.M.A.: Council Quarterly.
MARCH 24.—Victorian Branch, B.M.A.: Branch Council Meeting.
MARCH 25.—New South Wales Branch, B.M.A.: Annual Meeting.
MARCH 25.—South Australian Branch, B.M.A.: Scientific Meeting.
MARCH 26.—Queensland Branch, B.M.A.: Council Meeting.
MARCH 30.—New South Wales Branch, B.M.A.: Council Meeting (Election of Officers).

Medical Appointments.

Dr. I. A. Shumack has been appointed an official visitor to Lachlan Park Hospital, New Norfolk, Tasmania.

Dr. A. K. Grant has been appointed an honorary clinical assistant to the medical section, Royal Adelaide Hospital.

Dr. S. Hamilton has been appointed to the Department of Public Health of New South Wales.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Tasmania: Part-time specialist appointments for the north-west coast of Tasmania.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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